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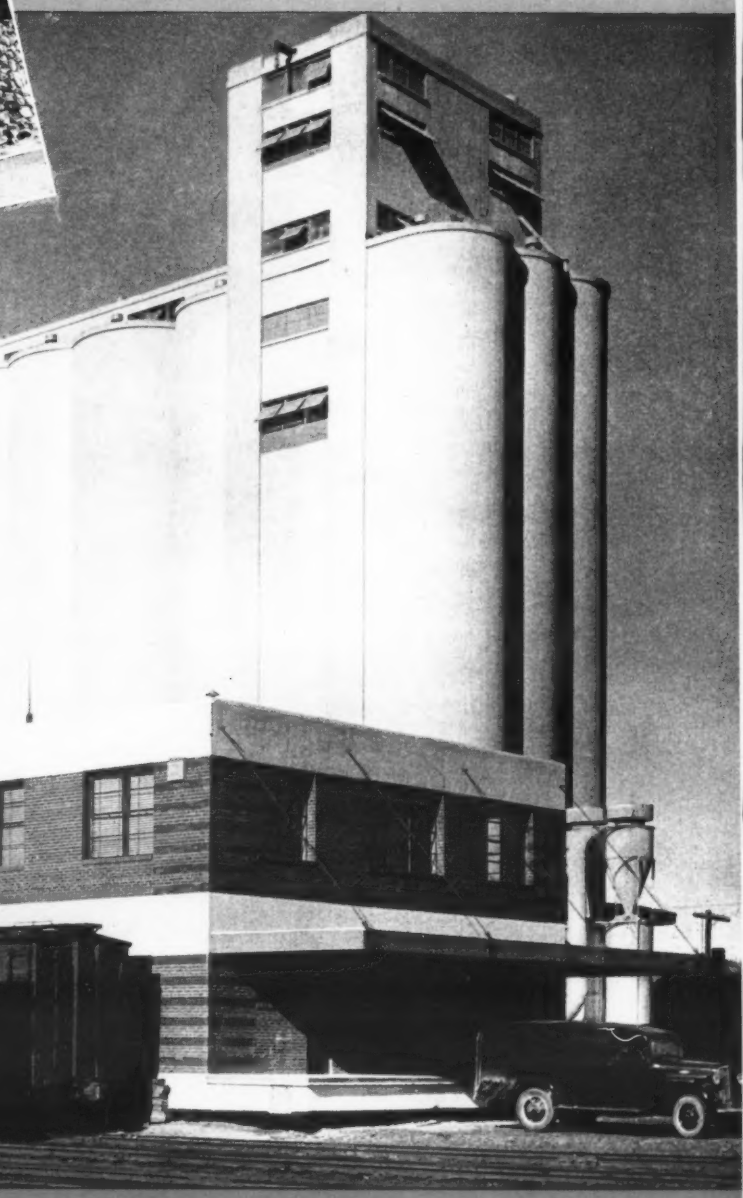
The Northwestern Miller

MILLING PRODUCTION SECTION

ASSOCIATION OF OPERATIVE MILLERS
PROFICIENCY, FELLOWSHIP AND CO-OPERATION
A.O.M.

GOLDEN JUBILEE
1895-1945



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Looking Back Over Fifty Years

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Some Reminiscences of the Founder and First President of the Association of Operative Millers

By B. W. Dedrick

THIS year marks the fiftieth anniversary of the Association of Operative Millers. It is regrettable that the wartime demands upon the railroads and the hotels made necessary the cancellation of practically all conventions. I am sorry, for purely selfish reasons as well as for the welfare of the association, that the Golden Jubilee will not be held this year because I had looked forward to the Chicago convention with considerable anticipation. Perhaps next year we can meet to take part in a fitting program.

The first two conventions of the association were held in Chicago in 1896 and 1897. Both were held at the Saratoga Hotel. The association, until 1919, was known as the Fraternity of Operative Millers of America.

The association was organized and completed nearly six months before our first convention in 1896. As its first president, I officially announced it as coming into existence as a complete and fully equipped organization. We had at that time duly elected officers, a constitution, seal and a membership of approximately 200 operative millers.

The date of this birthday, as I recall it, was Jan. 20, 1895. On that date, the official vote on the various propositions was placed in my hands.

Probably two years before that, I had written an article, which was published in the trade papers, outlining a plan to organize an operative millers' association. The association was not to be a labor union, but was to be founded for the purpose of educating and training millers to a higher standard of proficiency.

It was our hope at that time, that as the association developed and grew stronger in membership and friends, we could establish a school for millers whereby members could take certain technical courses for certain periods of time.

This general outline met with the approval of the great majority of millers and it was discussed pro and con in the trade journals for nearly two years. Pictures and short biographical sketches of the leading advocates of the association were published in the journals, also.

During those two years, however, it was "all talk and no action" and I finally decided that it was time for action. I then called upon those operative millers who had signified their desire to join the association as planned to cast their votes, sending their dues along with their ballots to J. M. Mattingly of Hartford, Ky., whom I had appointed as temporary secretary to receive the ballots and dues. Mr. Mattingly was one of the first to accept the plan and argue for the formation of the association. I had been in touch with him and through correspondence we worked together. He was a fine fellow and was well qualified for the job.

The vote was to be on the name of the association, its proposed constitution, officers, seal or badge, form of membership certificate, and membership on the board of directors. All these matters had been presented in the trade journals in the two years previous and some men had been nominated for the different offices.

At this time there were 150 or more who voted and became paid-up members. The result of the balloting was the acceptance of the name, "Fraternity of Operative Millers of America," with Chicago as the place of convention—the time, the first week in June at the Saratoga Hotel. My design of the badge was crossed rolls on a millstone, surrounded by the legend, "Proficiency, Fraternity, Aid, Protection." I was elected president; J. M. Mattingly, secretary, and M. A. McAttee, treasurer. First and second vice presidents also were elected. The result of the election was published in the mill journals.

Membership grew steadily and by the time of the first convention had increased to about 300. I think we had about 80 at our first meeting. We were pretty much strangers to each other. However, many were personal friends of mine. At this first convention, the constitution was revised and enlarged.

In the election, I was re-elected president. Anton Gessl, of the Phoenix Mill, Milwaukee, Wis., was elected first vice president; Robert Adams, Halliday Mills, Cairo, Ill., second vice president; J. M. Mattingly, secretary, and W. P. Stack, Dowagiac, Mich., treasurer. A board of directors was also elected. Mr. Stack became president the next year. G. W. T. Seifert was secretary and J. F. Mueller was treasurer.

I have a copy of the First Quarterly Report of the F.O.M.A. for 1899. A. J. Weinel, Waterloo, Ill., was president and J. F. Mueller, secretary and treasurer. This report gives a list of the membership in good standing. The membership continued to increase steadily.

It is interesting to look over this list of names and note the number of certificates from No. 1 on up into the hundreds, according to accession of membership. Thus,

No. 1—B. W. Dedrick president.
No. 2—J. M. Mattingly, secretary.
No. 3—J. A. McAtee, treasurer
No. 4—C. L. Clanahan
No. 5—Otto Prelowitz
No. 6—J. A. McWilliams
No. 7—S. A. Davidson
No. 8—J. M. Nicoli
No. 9—F. C. Strewfert
No. 10—W. L. Cutting

(Continued on page 12a.)

B. W. Dedrick
First President, Association of Operative Millers

Our Golden Jubilee

THE Association of Operative Millers now is at the end of a year which marks the completion of 50 fruitful years of proficiency, fellowship and co-operation among its members.

Henry Ward Beecher once said that "the greatest architect, and the one most needed, is Hope." As we approach another year, it is well for us in the association to keep that quotation in mind, and renew our hope that we who now are carrying on, may do as well in perpetuating the ideals of our organization as those men who founded it and saw it through its infancy.

Let us hope that all of our plans for the future will be carried out to the satisfaction of all concerned.

Let us hope that our country's sacrifices on the battlefields of the world during this terrible war will not be too great. Let us hope, too, that those sacrifices will not have been in vain.

Let us hope that people of all races and creeds will be able to enjoy life, liberty and the pursuit of happiness.

Hope was the torch that guided the members and officers of our organization through its first 50 years. Their steadfast faith in the principles of the Association of Operative Millers, and their hope in achieving its purposes have been examples which we can do well to follow.

Let us hope that the next 50 years will produce for us an even greater degree of progress in the art and science of milling. Let us hope that our common bond shall further the spirit of fellowship to the ultimate end that our proficiency as millers—and as citizens of this great country of ours—shall be improved.

To these goals I ask all members to re-dedicate themselves during this, our Golden Jubilee.

GEORGE S. O. SMITH,
President.

Milling Research

The author of this article is professor of Milling Technology at Kansas State College, and is chairman of the Research Committee, Association of Operative Millers.

Prof. R. O. Pence

Department of Milling Industry
Kansas State College

R. O. Pence

THE progressive action taken by the Millers National Federation in planning to organize a technical service department is exceedingly gratifying. This forward step is in line with the work of other industries. The milling industry can benefit by well-planned research and this undertaking could mark the beginning of a new epoch for the industry.

Industrial developments seem to advance in cycles. Are we approaching a new cycle in milling? It would be presumptuous for me to say that there have been no major technical developments since the introduction of the rolls and the purifiers. Perhaps it would be short-sighted to say that we always will use rolls and purifiers in the milling process. On the other hand, are these inventions such an outstanding achievement that their use will always be a part of the milling system? We are living in an age of many new developments and progressive research can be expected to bring about many changes, but unless the milling industry fosters research it will be left far in the rear of other industries.

In the past few years improvements in the products control department of milling have overshadowed the accomplishments in the field of milling technology. However, it is not fair to give the impression that no improvements or research has been conducted in the milling technology field, because actually much work has been done, the accomplishments are many, and new things are in the process of development.

Principles of Research

The problems of research have no end since new problems follow the solution of the old. This is true in milling as well as other industries. Each time a person does something in a different way he should be searching for a more efficient method in accomplishing the task. This is a form of applied research.

Certain principles must be used as a guide in performing research. First, it is necessary to learn the methods now employed and what has been done to make improvements. Unless this is done, there will be needless repetition. Then the objective for any particular line of research must be clearly formulated. Next, it is necessary to survey all the conditions which may affect both the performance and the results of the experiments. After this is done, an appraisal must be made to determine whether the personnel and the equipment are adequate in order to make the best use of available resources.

In research work, certain fundamental facts must be established. To establish certain facts, it is often necessary to spend several years collecting research data. Frequently the results of a great deal of work turn out to have no significant value to the industry. In fact, a great many of the facts that need to be learned about milling will not necessarily be valuable commercially. However, many facts taken together may add up to produce a new development in milling technology. For this reason, some types of research problems can best be undertaken in research institutions.

Research in the Past

The Kansas State College mill was remodeled in 1928, using a special grant from the state legislature and supplementary gifts from industrial firms. The Carrier Corp. had already installed an efficient air conditioner. The general plan in remodeling was to make the mill an efficient tool for research in milling problems as well as a laboratory for student instruction. The mill is now well equipped for performing research in wheat washing, wheat conditioning, grinding, flour blending, etc. The close association with the laboratory gives efficient co-ordination of milling research with baking and chemical investigations.

Among the early problems studied by the author was "The Influence of Temperature on Wheat Tempering." The following is taken from the summary of my thesis written in 1930:

"Increased temperature accelerates the rate of water penetration in wheat.

"The best temperature and rest period after tempering is related to the characteristics of the wheat.

"High temperatures maintained for a long tempering period are detrimental because of the unfavorable changes in the physical characteristics of the grain.

"Milling wheat at low temperature produces flour of higher ash content, due to pulverizing the bran.

"No portion of the wheat kernel has the characteristics of a nonpermeable membrane."

Co-operation by Operative Millers

In 1928, the Association of Operative Millers established a fellowship for research in milling at Kansas State College. The grant of $500 was supplemented by funds from the Department of Milling Industry. The Association of Operative Millers owned certain stock that netted them funds to finance this fellowship. The students selected as fellows were to spend one third of their time on the research problem assigned and the rest on studies leading to a master's degree. The research done formed the basis for the master thesis. Three such fellowships were granted prior to the depression in the early 1930's which tied up this fund so that this good work had to be discontinued.

Robert E. McCormick was the first person to have the honor of holding this fellowship for the school year 1929-30. In a survey of tempering practices in flour mills, he found that the rest periods after wetting varied from 8 to 72 hours. He, therefore, chose the problem: "Effect of the Length of the Rest Period after Wetting on the Process of Milling." In the summary of his master's thesis, these statements were made:

"Within the limits of 3 to 72 hours the length of the rest period has practically no effect upon the weight of middlings produced, the ash content of the flour streams, the moisture content of the flour streams, the baking quality of the flour, or the power consumed in grinding the samples.

"The weight of break flour produced showed a trend toward being slightly larger for the longer rest periods.

"The diastatic activity of the flour and wheat was slightly higher for the short rest periods, apparently showing a decreasing trend as the period of rest was lengthened." This was probably due to the consumption of sugar by the accelerated respiration in the moistened wheat.

Very few mills use over 24 hours rest period at the present time; some are using heat with 2 to 4 hours' rest after wetting.

Studies in Evaporation

George M. Kautz was the second person to be granted this fellowship for the school year 1930-31. He worked on the problem: "The Effects of the Evaporation in Wheat and Mill Stocks on the Process of Milling." The following conclusions from his studies are given in his master's thesis.

"The length of temper has no effect on the rate of evaporation from wheat and mill stocks. Apparently the rate of absorption is so great that the water penetrates the wheat kernel in a relatively short time.

"The temperature of the tempering water has no effect on the rate of evaporation. The temperature of the tempering water does not affect, to any appreciable extent, the temperature of the tempered wheat.

"The rate of evaporation from stocks of high initial moisture content is greater than from stocks of low initial moisture content.

"There seems to be no relationship between the temperature rise of the different rolls and the moisture loss from the stock ground by the rolls. This is due to the relatively greater influence of humidities. If a higher temperature causes more evaporation from the stocks this increases the humidity in the roll housing which tends to lessen the moisture loss due to heat from grinding.

"There seems to be a very definite relationship in the rates of evaporation from different classes of stocks. That is, the character of the stocks affects the rate of evaporation. Thus, the rate of evaporation is much greater from break than from middlings stocks. This is apparently related to the greater extent of surface exposed by the break as compared with the middlings stocks."

Humidity Studies

J. Edmond Anderson was the third person to hold the fellowship of the Association of Operative Millers, in the school year 1932-33. He modified the Crova hygrometer so that it could be used for obtaining the relative humidities inside of mill spouts and machines. This enabled him to select as his problem "The Determination of Relative Humidity Over Wheat and Mill Stocks." The following is taken from his summary:

"When water is absorbed by a solid such as wheat, the vapor pressure of the absorbed water is lowered due to the decreased rate of escape of water molecules. The extent to which the wheat affects the pressure which can be exerted by the vapor from the water which it contains is a measure of the intensity with which the wheat retains water, and indicates the capacity of the wheat for holding water. Evaporation is greatly affected by this capacity. The benefits from the tempering of wheat are to a large degree undone by the evaporation which takes place in the milling process.

(Continued on page 20a.)

Soft wheat millers, bakers, plant breeders and farmers should join in an improvement program designed to standardize three generally accepted types of soft wheat flour, the author of this article recommends. All four groups have definite parts to play in maintaining and improving the per capita consumption of wheaten products.

Tomorrow's Soft Wheat Flours

By George Garnatz

The Kroger Food Foundation

George Garnatz

POSTWAR thinking or planning has virtually become a national addiction. Some indulge in it with trepidation. Others approach it with an attitude of courage and hope. I am going to consider it here in the latter vein, coupling with these attributes some retrospective analysis and forward-looking thinking, with perhaps a little more emphasis on the technological rather than on economic aspects.

From the viewpoint of the baker, I shall try to do so to the best of my ability. The baker is regarded as a significant consumer of the millers' products. This is true only to a limited extent, for in a larger sense the miller and baker are only one half of a partnership involved in the business of bringing the product of the wheat field to Mrs. Consumer in forms that will encourage her to use this valuable, energy-furnishing commodity to the extent which it so well deserves. The other two members of this team are the farmer and the wheat breeder. I want to emphasize this concept for it must be embraced by all four parties involved more consciously than heretofore, if they are to build soundly for their mutual and long-range advantage. All four parties have a definite part to play in maintaining and improving the per capita consumption of wheaten products as I will try to develop later, so let us counsel together as partners.

There seems to be no doubt in the minds of those competent to judge, that the period which lies ahead will be one of keenest competition. In repayment for a good measure of success, one will have to utilize freely every ounce of energy and initiative, the fullest measure of skill and efficiency as well as anticipatory thinking and imagination. To follow the line of least resistance or to adopt an attitude of defeatism will be fatal. In the field in which we find ourselves associated, we will no longer be able to be content with what nature has given us. We are going to have to compensate for her vagaries as much as possible by such provisions as are available to us through the exercise of technology and organized planning. Because some of these provisions cannot be accomplished in a short time, it is well that we institute a constructive program soon.

Competition to Increase

The lot of products made from wheat in the future is not going to be easy. Tremendous advances in transportation coupled with the advances that are being made in the handling and processing of other foods are going to provide greater competition than ever before. Fortunately, in my opinion, the outlook for the future seems to be more favorable for those interested in the soft wheats.

I have in mind that cakes, cookies, sweet goods and pies are still largely produced in the home. If these products, made commercially, can by their high quality remove the homemaker's lingering reservations on this score, thus cause her to yield to the convenience commercially baked goods offer (and to which she is quite susceptible) then it is possible that she will serve such products more frequently. This class of baked products possesses palate appeal, taste variety, and good nutritional values. They lend themselves to impulse buying and in general are well adapted to compete successfully with other foodstuffs. Here, then, is good reason to take soft wheats seriously by all four parties involved in the progression of the wheat from the field to the consumer of the products made therefrom.

Now let us inject some retrospective thinking at this point. Many developments have taken place in the field of commercial baking within the relatively recent past and more can be expected in the period after the war. Mechanization of bakery operations has been resorted to wherever possible. The consumer demands high quality. Competitive conditions make uniformity, efficiency and economy mandatory. There has been a switch from bulk distribution to packaging in retail units, a development which will carry over to the postwar era. This necessitates fairly rigid standardization of the finished product. All of these things place much more emphasis on the uniformity and specific adaptability of the raw materials used by the baker. This is especially true of flour.

Three Flour Types Needed

To carry our thinking along a little further, let us consider the flour needs of the biscuit and cracker baker. His requirements call for three general types of flour. One that is used primarily for making crackers, may be moderately strong as soft wheat flours go. Another, which in addition to being used to make crackers, is used to produce what is called hard sweet goods of which graham crackers are a popular example. It may be moderately weak. Still another is used to make products like vanilla wafers, fig bars, macaroon snaps and shortbreads. This flour must be very soft and is generally produced from white varieties of wheat such as are grown in Central Michigan and on the West Coast.

These types of flour cannot very well be used interchangeably, although it would be easier for the baker to use a weaker flour in place of a stronger one. However, it is more generally required of the baker to replace a weaker flour with a stronger type. This he can do by increasing the sugar or shortening (sometimes both) in his formula. There are several objections to this modification procedure.

In these days of intensive production, where so much depends on close scheduling, constant adjustment of formulas places too much dependence on the skill and art of the individual and encourages too much variation. This is reflected in the quality of the product and in the packaging operation. It is also inefficient cost-wise to use higher than desirable amounts of sugar and shortening. Finally, no matter how skillful the baker, if he must use a flour too strong for the use he plans to make of it, the texture, tenderness and eating quality of his product will not be as good as if it had been made with flour of the proper degree of strength.

Soft Wheat Flours Too Strong

Now the long-time experience of the baker has been that he is almost constantly faced with using flours stronger than he needs. There has been a consistent trend toward greater and greater strength, especially in the soft wheats available to the midwest. This applies to all three of the general types to which I have already referred. The moderately soft type is, in fact, practically non-existent and even the very soft type is tending toward too much strength for its class either from natural causes or because it is coming to the miller increasingly admixed with soft red wheat.

This suggests that a sound wheat improvement program might well find a prominent place in a postwar program fostered and sponsored by bakers, millers, farmers and wheat breeders and that such a program should contain some provision to reduce the strength of the soft wheats to be grown.

It is realized that strength is associated with the variety of the wheat, modified by geographical location and that the goal suggested herein cannot be gained in a short time. The job starts with the wheat breeder. It is one within his ability to accomplish.

He will be more inclined to do it and the benefits to be derived therefrom will be enjoyed sooner, if mutual agreement is reached soon by the farmer, miller and baker that it is the desirable thing for which to strive.

I want to make it clear that such a program does not embrace the elimination of the three general strength classifications for soft winter wheat to be grown in the midwest. What is proposed is that strength within each be reduced. Three general strength levels in the soft wheat grown should be maintained. They will lend themselves not only to the needs of the biscuit and cracker baker, but will be fitted for the production of cake flours, while the strongest type should still permit the production of family or so-called "all-purpose" flour. The production of the weakest type should be encouraged wherever it can be grown for usually there is not enough conveniently available to the midwest user. By having a better balanced spread in wheat strength than is the case now, the miller would be in a more flexible position to blend and thereby improve the uniformity of his product and to provide specialized types of flours as are applied in the making of doughnuts, pretzels, matzos, pastry and prepared flour mixes. The advantages to the farmer in a program of this sort are not too hard to imagine.

A Five-Point Program

By way of summary and emphasis let us again enumerate the salient points of a wheat improvement program which would seem to be advantageous for building soundly for the future.

(1) Develop and grow wheat varieties which would fall within three strength classifications defined in general terms as: (a) moderately strong, (b) moderately weak and (c) very weak.

(2) Breed less strength into the wheats of each of these three classifications than is the case now.

(3) Encourage in those localities, suited to the purpose, the growing of more wheat of the types that produce very weak flours.

(4) Consider ways and means to minimize admixture of wheat of one strength level with another as the wheat comes to market in order to conserve the advantages that come from blending for the miller's use.

(5) Plan for possible increased production of soft wheat in the event the baking industry seeks to achieve greater per capita consumption of

(Continued on page 19a.)

Production of Alcohol from Grain

By L. A. Underkofler

Chief Chemist, Farm Crops Processing Corp.

INDUSTRIAL alcohol, in peace as well as in war, is one of our most important chemicals. From the standpoint of its many uses alcohol has been said to be, next to water, the most important liquid known, and it is listed as one of our six most useful substances. In normal times alcohol serves as a valuable solvent, as an anti-freeze agent, and as a raw material in the manufacture of plastics, lacquers and varnishes, dyes, drugs, medicinals, antiseptics and anesthetics, to list only a few of its myriad uses.

Before the war more than 100,000,000 gallons of industrial alcohol were produced and used each year in the United States. Wartime demands have increased the requirement so that during 1944 the production of industrial alcohol was about 650,000,000 gallons and it is estimated that 10% more alcohol will be required in 1945 than was used in 1944. In order to meet this huge demand for alcohol, liquor distilleries have been converted to the manufacture of industrial alcohol and new plants have been built, of which the plant operated by the Farm Crops Processing Corp. in Omaha is the largest.

This tremendous expansion in the production of alcohol has been partly due to expansion of previous uses under wartime demands, but more especially to the large requirements in the manufacture of smokeless powder and other explosives, in making butadiene for conversion into synthetic rubber and as a supplemental fuel in aviation engines. In the manufacture of smokeless powder, alcohol and ether, made from alcohol, are employed as solvents, the equivalent of about 40 lbs of alcohol being expended and not recovered in producing 100 lbs of the powder. Nearly half of the alcohol produced in 1944 was converted into butadiene and this in turn into synthetic rubber.

Rubber from Alcohol

To date about two thirds of all synthetic rubber produced in the United States has come from alcohol, and the tonnage of synthetic rubber now being produced in the nation is running about 50% above prewar importations of natural rubber. Alcohol is now being used as a supplemental fuel in the engines of our military airplanes but the extent has not been definitely revealed.

There are two general methods now in use in this country for the manufacture of industrial alcohol. The older one, and more important one from the standpoint of volume, is the fermentation method. By this process carbohydrates (from agricultural crops) are converted to alcohol by the action of yeast. The second one is the synthetic method by which ethylene gas, a by-product from the cracking of petroleum to produce gasoline, is converted through a series of chemical reactions into alcohol.

Before the war approximately 15,000,000 gallons of our industrial alcohol were made by the synthetic process, about 77,000,000 gallons by fermentation of blackstrap molasses, a by-product of the cane sugar industry, and 7,000,000 gallons from fermentation of grains and other farm crops. Last year 90,000,000 gallons of alcohol came from the synthetic process, about 500,000,000 from fermentation of grains and 60,000,000 from fermentation of blackstrap molasses. It is apparent that the greatest expansion has been in the production of alcohol from grains.

Process Not Complicated

The production of alcohol from grains is fundamentally a very simple process. The grain is first ground to give a rather coarse whole grain meal. This is then mixed with water and cooked, the resulting cooked grain-water mixture being similar to the corn meal mush with which most people are familiar, and is known in the distilling industry as the grain mash. The mash is cooled to 140° F. and malt enzymes are added to convert the starch to sugars. The saccharified mash is cooled to about 82° F. and yeast is added. In the ensuing fermentation the yeast changes the sugars into alcohol and carbon dioxide, the latter escaping as gas. When the fermentation is completed the alcohol is separated by distillation. Since only the carbohydrate of the grain is converted by the yeast, the residues from distillation are recovered as cattle feed by screening, evaporating and drying.

Extensive Equipment Needed

Although the fundamental process is simple and could be carried out by almost anyone on a small scale, to produce alcohol at the rate of 65,000 to 85,000 gallons per day as is done in the plant of the Farm Crops Processing Corp. requires rather large and extensive equipment and considerable operating care in order to insure maximum yields of alcohol from the grain.

At the Farm Crops plant the average throughout of grain is about 30,000 bus per day. This is about the amount of grain which would be produced on a section of Nebraska land each year with average Nebraska yields. Corn is the preferred grain, but any starchy grain can be employed for alcohol production. At Omaha during the months of May through September last year, wheat and rye were the main raw materials. During the months of October to the middle of February sorghum grains constituted the major raw material, and since that time soft and damaged corn with an average moisture content of about 22% have been employed almost exclusively.

Grain Is Pressure-Cooked

The grain is ground through roller mills or hammer mills, the latter having been installed early this year to handle the high-moisture corn. The mash is cooked at a temperature of 330° F. for about six minutes through the two pressure cookers with steam at a pressure of 150 lbs per square inch. The cooking operation serves two purposes, to gelatinize the starch and to sterilize the mash by killing undesirable micro-organisms.

The cooked mash is flashed through two pressure reducing vessels, the first at 16 lbs gauge pressure and the second under vacuum, during which the mash temperature is reduced from 330° to 170° F. and the resulting low pressure steam is used to operate the stills. At this point a slurry of ground malt in cold water is mixed continuously into the stream of hot mash so that the resulting temperature is 140° F. The malt enzymes must saccharify the grain starch to sugars since yeast can act upon sugars but not upon starch. The saccharified mash is then pumped through coolers, where the temperature is further reduced to about 82° F., and into the fermenters.

4,300 Bus Per Batch

Each of the 18 fermenters at the Omaha plant will hold about 130,000 gallons of mash containing about 4,300 bus of grain. Each fermenter is inoculated with 2,800 gallons of yeast culture grown in the plant. The development of the yeast cultures is one of the most important and carefully controlled processes in the plant. The purity and activity of the yeast cultures are of paramount importance in obtaining maximum yields and yeast culture development is under the care of a highly trained and proficient bacteriologist.

The fermenting mash remains in the fermenter for 48 hours, during which period the yeast converts the sugars present in the mash to alcohol and carbon dioxide, about an equal weight of each being formed. The carbon dioxide gas is vented through pipes from the fermenters through the roof. In this manner nearly 200 tons of the gas are wasted each day. It is hoped soon to be able to secure approval for the installation of equipment at the Omaha plant to recover at least 150 tons per day of the carbon dioxide as dry ice.

2.75 Gallons Per Bushel

At the end of the fermentation period the fermented mash, or "beer," is sent to the stills. The beer stills remove the alcohol along with some water, these mixed vapors going to the rectifying stills where the alcohol is concentrated to 190 proof alcohol, the 95% alcohol of commerce. At the present time the alcohol is shipped in tank cars under government allocation to synthetic rubber plants, munition plants, or other users of industrial alcohol.

During the fermentation only the carbohydrate is consumed; all of the protein, minerals, vitamins and other elements of soil fertility remain and are recovered as feed for livestock. From a bushel of corn approximately 2.75 gallons of 190 proof alcohol are obtained, and from the fermentation residue 18 to 21 lbs of feed are recoverable.

The stillage after removal of the alcohol in the beer stills is passed over metal screens. The solids which do not pass through the screen openings are run through presses to remove as much moisture as possible and then dried in gas heated rotary driers at the Farm Crops Processing Corp. The resulting product is known as distillers' dried grains and contains the fibrous parts of the grain, part of the protein, some of the yeast, and part of the fat of the original grain and is a fair source of vitamins. A typical analysis of corn distillers' dried grains shows 28% protein, 8% fat, 16% fiber, 3% ash and 45% nitrogen free extract. This is an especially good protein concentrate for beef and dairy cattle and sheep. The digestibility of the protein is higher than in the original grain.

The soluble and suspended materials remaining after the fermentation pass through the screens with the liquid. This liquid is first evaporated to a thick syrup in quadruple effect evaporators, then dried to a solid over steam drum dryers to produce distillers' dried solubles which contain up to 20% of yeast and are an excellent source of vitamins as well as the common nutrients. A typical analysis of corn distillers' dried solubles gives 32% protein, 10% fat, 3% fiber, 8% ash and 47% nitrogen free extract. The ash is relatively high in valuable phosphorus and potassium. Vitamin assay shows minimum values, per pound, of 3.2 mgs thiamine, 8.0 mgs riboflavin, 65.0 mgs niacin, 11.0 mgs pantothenic acid and 3,000 mgs choline. Distillers' dried solubles is an especially good concentrate for poultry and swine.

Dry Ice a By-Product

Other by-products besides livestock feeds may be recovered in grain alcohol manufacture. Thus a bushel of corn yielding 2.75 gallons of alcohol will give enough carbon dioxide to make about 14 lbs of dry ice and will also yield up to 1.5 lbs of corn oil. It is hoped soon to secure equipment for dry ice at the Omaha plant, and at the present time construction is underway to provide for recovery of the corn oil.

Currently the plant of the Farm Crops Processing Corp. is processing corn at the rate of 30,000 bus per day, and producing from 75,000 to 85,000 gallons of 190 proof alcohol per day. The highest production for a single day to date has been 86,746 gallons. In the single year the plant has been in operation the amount of alcohol produced would cover an area of 20 acres to a depth of 4 feet. Present recovery of feeds is around 200 tons per day and when construction work now in progress is completed feed recovery of about 300 tons per day will be achieved. The corn oil plant now under construction will produce about 40,000 lbs of corn oil per day, and it is hoped equipment can be provided for the recovery of at least 150 tons of dry ice per day.

Industry's Postwar Needs

The question is frequently asked as to the future of the grain alcohol industry in the postwar period. No categorical answer to this question is possible since so many factors are involved which only time can resolve. However, recently developed new uses along with definitely foreseeable expansion in old uses for industrial alcohol lead experts to estimate that the normal postwar requirements will be two to three times the prewar needs, and that is probably 250,000,000 gallons per year. On this basis, with the present capacity for production of synthetic alcohol at 90,000,000 gallons per year and a possible production of about the prewar level of 80,000,000 gallons per year from molasses, some 80,000,000 gallons per year will be necessary from other sources, and a large portion of this

(Continued on page 18a.)

Past, Present and Future of the Association of Operative Millers

By W. E. McCRAITH

Executive Secretary
Association of Operative Millers

FIFTY years ago, in 1895, our association was founded and known until 1919 as the Fraternity of Operative Millers. Since then it has been known as the Association of Operative Millers.

In forming the association, Benjamin W. Dedrick, founder and first president, had in mind the education and training of millers to higher standards, and in the course of time establishment of a milling school or college as one of its objectives. Our object was and always will be "to promote a spirit of fellowship and co-operation among operative millers, and to advance the interests of the milling industry." Our motto, "Proficiency, Fellowship and Co-operation."

During all these years our aim has been to carry on with our objectives and motto ever in mind, directing our efforts toward further advancing the interests of the milling industry, maintaining the high standard in the art of milling and working closely with the Millers National Federation and other milling organizations in solving the many milling problems.

The first annual convention was held in Chicago in June, 1896, and we have met annually since then with the exception of this year. As the years passed district organizations were formed to stimulate interest in Association activities and to develop discussions of sectional milling problems through local contacts in the states where the mills are located. The first district organization, formed in Kansas by the late B. C. Williams, developed so wonderfully under his guiding hand, led to similar organizations in other districts. We now have 11 districts throughout the country. The 12th, just added, is in Australia. Meetings are held in these districts periodically, some twice a year and others four times a year, thus enabling millers and their friends to meet and discuss problems in milling, vital, not only internationally, but to their local mills and sections; affording an opportunity for a closer bond of respect and fellowship; development of leadership ability, also encouragement to the younger miller. Through the efforts of the officers in each district, the interest of the milling industry has been advanced, the individual miller is more proficient, the younger miller has been encouraged, and in their contribution to the dissemination of the total sum of milling knowledge, each one of our districts has been very successful.

Monthly bulletins, containing technical articles on milling, written by men of authority in milling, have been issued since 1920.

Our research committee, headed by R. O. Pence, Kansas State College, Manhattan, Kansas, has rendered splendid service in solving the many milling problems sent to it.

Recognized as one of the few and one of the oldest technical and professional organizations in existence, today, as we celebrate our 50th Anniversary, we feel proud of the fact that we have served the milling industry so faithfully in our capacity, knowing full well our efforts and co-operation in the milling field have been appreciated. We fully realize today's obligations and milling problems and pledge our loyal support and co-operation with other millers' organizations in facing our obligations and solving these problems.

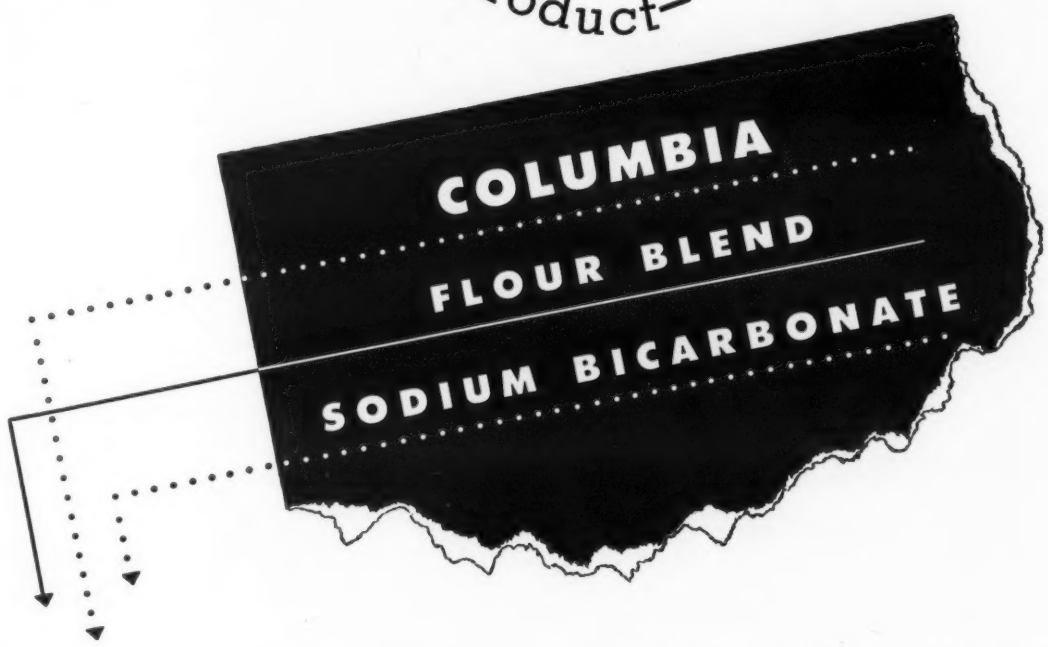
Having survived depressions, gone through years of war, and having experienced difficult milling years, our association is stronger than ever. The continued loyal support we have had from so many is a high tribute to its usefulness and on past accomplishments the future will be built, feeling confident that further progress is assured.

One of the greatest problems we have to face is the training of young men. These questions therefore arise:

What is the milling industry prepared to do to insure the full technical training of its young personnel? Will it be content to ignore the desires of the young man and leave him to acquire his technical training by evening studies? Will the industry, in co-operation with educational authorities, make the necessary plans to deal adequately with those living in remote areas, as well as those within easy access of colleges? Solution of this problem will build our head millers and superintendents of tomorrow.

It is not too much to ask that every milling organization work together on this problem for the betterment of our industry.

The BEST for your product—



From the first step in refining crude "bicarb" through to the packaged blend, Columbia employs a rigid control system which prevents deviations from its superior formula. Each shipment of FLOUR BLEND is identical—made to the highest standards of purity, containing the precise mixture of U.S.P. Sodium Bicarbonate and Tri-Calcium Phosphate.

Columbia FLOUR BLEND Sodium Bicarbonate is non-caking and free flowing. Blends smoothly with flours, enabling users to maintain the uniformity so essential in safeguarding their own standards. FLOUR BLEND is available in a variety of sieve specifications, to meet every requirement.

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Samples of Columbia FLOUR BLEND and U.S.P. Sodium Bicarbonate will be sent to you on request—there is no charge. Take this opportunity to put them to your own tests—you'll find they meet every claim.

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Some Things New in Milling

By A. H. Rousseau
Fisher Flouring Mills Co.

THE remark that flour milling has not changed since the introduction of the roller mill and the purifier is a comment that is heard too often. Perhaps the basic idea of the release of the endosperm from the wheat berry and its subsequent separation from the bran and conversion to flour by means of reduction rolls, purifiers, reels and sifters has not changed materially. But the fellow who says that "flour milling has not changed" just does not know what he is talking about.

Any miller who reverted to the processes and methods used even 30 years ago would soon go out of business. The milling industry has witnessed considerable technical advancement during the past several years. None of the developments have been what can be described as "revolutionary," but they are refinements of the basic process which all contribute to a better product, a more uniform and therefore a more acceptable product.

The purpose of this discussion will be to call attention to some of the more recent developments. Included will be some that are quite new.

Wheat Tempering

Wheat tempering is a favorite topic for discussion whenever millers meet. The operation and uses of the short time wheat conditioner are now well known. For those who do not use the conditioner and are bothered by a lack of means to add water accurately, equipment is now available. In accomplishing the accurate addition of water so that the wheat arrives at first break with a uniform content of moisture three variables must be considered. First, the moisture content of each batch of wheat must be accurately determined. Second, the stream of wheat must be accurately measured. This is easily accomplished by means of the scale feeders now on the market. Third, the addition of water must be precise and dependable. A device that can do this takes the guesswork out of tempering. This device is the rotameter.

The rotameter, while not entirely new in the milling industry, is still, however, a stranger to many operators, and because of its excellent adaptability to many milling operations, it certainly deserves some comment. It is an area type meter primarily composed of a vertical, tapered, precision bore metering tube in which a weight, called the float, moves freely. As the float rises under the force of the liquid, the circumference of the tube increases automatically until an equilibrium has been established between the opposing forces. Therefore, the position of the float in the tube becomes an accurate measurement of the true flow rate. It is merely necessary to provide a reading or calibration scale on the outside of the tube and the flow rate can be determined by direct observation of this float.

Several rotameter installations have been made in flour mills all of which have been worthy of note. Most of these have been applications with respect to metering of tempering water. The unit, when furnished with a recording instrument and an alarm, provides an excellent system of control for this operation. There are doubtless many more possibilities for the rotameter in the industry, and investigation of such applications would undoubtedly prove of value to the operators.

Thus, if to a constant, measured stream of wheat of a predetermined moisture content can be accurately applied a stream of water the results of tempering will be uniform.

Applications of Electronics

The use of electronics is increasing in all industries and flour milling is no exception. Fluorescent tube lighting is the most familiar application. The electric eye has found a place in our industry in the modern wrapping machine. It is used to warn of breaks in the paper.

One of the more spectacular of the recent applications of electronics is the stroboscope. The speed of rotating and reciprocating parts can be measured to an accuracy of 1% by setting the flashing speed of the instrument to produce a stationary image when the light is directed upon the moving part. Offsetting the dial slightly from the stationary image position makes it possible to observe moving parts of a machine in slow motion. This means that high speed shafts, couplings and bearings can be examined "on the run."

A COTTON BAG is *more* than just "another container"!

Day in and day out, millions of American housewives fashion emptied cotton bags into myriads of useful, wanted items of clothing and furnishings for home and family. The cotton bag represents to them a *plus* value in the products they buy.

The appeal of COTTON BAGS adds to the sales power of your product

Women favor products packaged in cotton. When they face a choice of brand, the cotton bag is often the deciding factor that turns the trick.

National interest in the thrifty practice of making emptied cotton bags into useful personal and household items is being stimulated by constant advertising and promotion through farm publications, home economics magazines, and teacher publications with over 8,000,000 circulation.

Requests for more than a MILLION copies of the astonishing and practical book, "A BAG OF TRICKS FOR HOME SEWING", have been received from eager women. You can take advantage of this interest by using this book, with your own imprint, to turn a neat sales trick for your product.

NATIONAL COTTON COUNCIL OF AMERICA

MEMPHIS (1), TENNESSEE DEPT. 50 P. O. BOX 18

THE AMAZING STORY OF A MILLION BOOKS!

Each week, by the thousands, requests pour in for copies of "A BAG OF TRICKS". Eager women want the clever, helpful information the book gives. Home economics groups seek its suggestions. Teachers are using it in classrooms! For not only does it bring IDEAS, but it promotes THRIFT!

This deluge of active interest from women illustrates the tremendous appeal of sewing with cotton bags. To women a cotton bag is *not* just a container. It represents a *plus value* for the product inside it.

You Can Profit
By Using This Book

Many manufacturers already are using this book to increase consumer sales appeal and build dealer good will for their products. Ask your bag manufacturer, or

WRITE US FOR A FREE COPY AND DETAILS OF THE PLAN FOR MAKING THIS AMAZING BOOK DO TRICKS FOR YOU.

The stroboscope is a device which permits a rotating or reciprocating object to be viewed intermittently and thus produces the optical effect of slowing down or stopping motion. If, for example, a disk rotating at 1,800 r.p.m. is viewed by means of short and evenly spaced light flashes which occur 1,800 times per minute, the disk will apparently be standing still. A slight decrease in the flashing rate will make the disk appear to revolve slowly in the direction of its actual rotation, and an increase will produce a similar motion in the reverse direction. No flicker is seen except at very low flashing rates, because the eye retains each image for a brief interval after it occurs. This flashing lamp principle was developed at the Massachusetts Institute of Technology. Short, brilliant light flashes are produced by a lamp filled with rare gases, and the flashing rate is controlled by a built-in electronic timing circuit or by a motor-driven contactor.

When mechanisms operating at high speeds are viewed by stroboscopic light, in slow motion, all irregularities present in the original motion are made visible, thus making it possible to study the motion of high-speed mechanisms under actual operating conditions. When the speed of flash coincides with the speed of rotation and motion is apparently stopped, the stroboscope becomes an excellent means of measuring speed, and for this purpose the dial which controls the flashing rate is calibrated directly in revolutions per minute.

For analyzing high-speed operations, the stroboscope can make a machine appear to be stopped at any point in its cycle of operations, or appear to move slowly through its cycle so that each irregularity can be clearly seen.

This is an invaluable aid in the design of machines and appliances, for it allows the detection of distortion, vibration and other irregularities that may occur only at high speeds.

In production testing, the stroboscope facilitates the line-up and balancing of rotating parts, the adjustment of clearances, etc. In maintenance and servicing, the effects of improper adjustment can be quickly detected and the cause corrected.

Feeding Materials

To the list of the millers' duties has been added the feeding of enrichment. A great many types of feeders are being used for this work. All of them feed by volume. If the density of the material varies the feeding rate will vary. A special feeder has been developed that feeds by weight —that is, gravometrically.

The equipment consists of a hopper equipped with an electric vibrator mounted above a vibratory feeder which discharges on to a belt conveyor suspended from an even balance scale.

The belt conveyor is driven by a synchronous motor, maintaining a constant speed. While the speed of the belt conveyor can be changed, it is done by means of gear ratio in the motor or change of driving sprockets. It maintains a constant speed—not a variable speed.

For the very low rates of feed required in this application the impulse type control is used with a very slow belt having a speed of approximately one foot per minute. The rate of feed is set by moving the poise on the scale beam to the amount necessary on the belt to give this the rate of feed desired. This is obtained by using a factor which is supplied with each machine and determined by actual tests at the factory before the equipment is shipped out.

The impulse type control consists of a contact on the scale which is off when the scale is at balance, but as soon as the load on the belt conveyor is light and the scale indicates under weight a contact is made.

With this arrangement the feeder is operated intermittently, maintaining the scale in balance. This places the material on the belt in small batches which are smoothed out into a stream by means of plows or scrapers, arranged on the belt.

Thus, while the vibratory feeder is operating intermittently the discharge from the belt conveyor is in a comparatively smooth stream.

The frequent stopping and starting of the vibratory feeder and hopper vibrator is not at all detrimental to the equipment inasmuch as the feeder has no high starting current or inrush of current during the start.

Material Handling

The economical movement of material is of prime importance. This includes the raw materials of industry through to the finished product. There are few phases of present day manufacturing that have shown greater improvement than the transportation of material. Outstanding in the handling of bulk materials are such improvements as vertical conveyors, elevator buckets that materially reduce blowing and bulk unloading of grain with air.

Tremendous strides have also been made in the movement of packaged material. The hand truck in many industrial plants is considered as obsolete as the horse and buggy. Unit loads are now moved on pallet boards.

Efficient warehousing systems have employed power trucks or "jitneys" for some time. Hand operated trans-

A SIGN OF THE TIMES 1945

New Feeding Chart to Simplify Addition of VEXTRAM to Flour

Purpose of the "VEXTRAM" FEEDING CHART

- SAVES CALCULATIONS.
- INSURES ACCURACY in amount of flour-enrichment mixture delivered by feeders to enrich flour to required standards.
- IT IS IMPORTANT that you check feeders regularly.
- USE THE CHART we sent you. If you need another, write us today.

Actual size of chart is 15½" high by 11½" wide.

VEXTRAM
WINTHROP'S BRAND OF FLOUR-ENRICHMENT MIXTURE
PATENT APPLIED FOR

"VEXTRAM" ADVANTAGES

1. pH control assures stability—minimum vitamin potency loss.
2. Minimum increase of ash content of flour.
3. Freer-flowing—better feeding—better dispersion.
4. Uniform particle size of ingredients and carriers.

"VEXTRAM", Winthrop's brand of flour-enrichment mixture assures safe, adequate enrichment and incorporates a 10% SAFETY FACTOR. Use PURPLE Label (½ oz. per cwt.) or YELLOW Label (¼ oz. per cwt.) both conforming to recommendations of the Millers' National Federation. For the safe enrichment of *soft wheat flour*, get RED Label "VEXTRAM".

Address inquiries to—
Special Markets Division
WINTHROP CHEMICAL CO., INC.
170 Varick Street, New York 13, N. Y.

**Winthrop Chemical Company, Inc. has received its FOURTH Army-Navy award for "high achievement in production of war material."

STOCKED FOR QUICK DELIVERY AT NEW YORK, CHICAGO, KANSAS CITY (MO.), DENVER, LOS ANGELES, SAN FRANCISCO, PORTLAND (ORE.), DALLAS AND ATLANTA

veyors continue to be used in many industries. Recently a new piece of equipment made its appearance—the transporter. This battery-driven machine makes it possible for a woman easily to move loads weighing up to 6,000 lbs. In these days of manpower shortages such labor saving machinery is finding ready acceptance.

Dust Collection

In recent years a great deal of time and effort has been devoted to the collection of dust. Recently, a device has appeared that shows considerable promise. It consists of a vertical bag of a special material that is able to retain very fine dust. This device has an efficiency of 50 cubic feet of air per minute per square foot of cloth surface. The cloth is cleaned by means of a cleaning ring containing compressed air. This ring is operated by a pressure switch. It starts when the pressure inside the bag reaches four to five inches of water as measured by a manometer tube. It continues to operate until the pressure is reduced to two inches of water. A closed system is accomplished by a retaining spring at the discharge of a small conveyor at the bottom. The first experimental installation has now operated four years successfully with the original bag still in use. Present installations are all in use on large air volumes.

Looking Into the Future

Recently we have learned how to purify middlings by using the principle of centrifugal force. We now know that the egg of an insect is as fragile as a hen's egg. Therefore, mechanical force can be used to sterilize the products we manufacture. We can operate our machines faster and with less maintenance due to better bearings and lubricants. The short center drive is no problem because of the development of the "V" belt.

The next decade will bring further refinements in the milling industry. It has been demonstrated that the moisture characteristics of the air have a profound influence upon the results of the milling operation. We can expect great strides in the field of air conditioning.

Such compounds as "DDT" give promise of a miller's utopia free of insects some happy day in the future. I cannot help but feel that some better method will be found to release the endosperm from the bran.

The possibilities for improvement in the milling industry allow ample opportunity for practical research. The older miller of today can look back nearly a half century since the buhrstone was displaced and feel proud of the progress the industry has made. The young miller can look to a future in which unparalleled technical advances will be made.

A. H. Rousseau

"ENTOLETER" PROTECTS QUALITY STANDARDS

Enlarged view of a member of the prolific beetle family. Actual length is approximately 1/6", but his appetite is out of all proportion to his size.

MILL RECORDS PROVE

100% KILL

Independent records are proof of 100% kill for "ENTOLETED" materials, in mills where the "ENTOLETER" has been in continuous operation for 1 to 5 years.

"BUGS" BEETLE SAYS:

Time was when an up-and-up comin' bug could find free board and lodgin' in any likely spot. He had a future! That was before those mill fellows took up with "ENTOLETERS"

When we say that the "ENTOLETER" destroys ALL insect life in milled products, we mean just that. Because of proved results, more and more millers are extending "ENTOLETER" applications to key streams throughout their plants. They *know* what the mechanical "ENTOLETER" does. Let us send you interesting facts on the low-cost of "ENTOLETER" continuous infestation control. ENTOLETER DIVISION, The Safety Car Heating & Lighting Company, Inc., 1189 Dixwell Ave., New Haven 4, Conn.

ENTOLETER
INFESTATION DESTROYER

CONTINUOUS DESTRUCTION OF ALL INSECT LIFE

The "Hardness" of Wheats

WHEATS can be grouped into hard, medium and soft types according to the relative ease with which they can be bitten with the teeth. Common observation shows that when these different types are ground in a coffee mill before making moisture tests, soft wheats give a product much more floury than that from hard wheats; using this fact, a simple laboratory method has been devised for measuring the relative hardness of different types of wheat.

Such a method can be used to indicate the moisture content at which wheats should be milled, since the harder the wheat the higher the moisture content to which it may, and should, be conditioned, while to mill soft wheats successfully they must be brought on to the mill at much lower moisture contents.

The method consists simply in passing 100 gms of wheat, cold-conditioned previously for 24 hours to 16% moisture content, through the first break rolls of the laboratory mill. These rolls have 19 flutes per inch and are set sufficiently close to give a heavy release; the roll gap being exactly the same in all cases. The ground product is sifted over a No. 10 standard flour silk for exactly two minutes on the laboratory mechanical sifter. The amount tailing over the silk gives a measure of the hardness of the wheat.—Milling.

always something new

• For 60 years PK bags have served wide awake flour and feed millers with new ideas and sales-winning developments.

Among the PK innovations, that have helped put the products of PK customers out in front in sales, have been Ken-Prints, Ken-Stripes, Tint-Sax, improved printing methods such as wash-out inks, and other quality textile bag developments.

Postwar, Percy Kent will be ready with new and better bag designs, materials, and merchandising ideas—

"Always Something New!"

specialists in cotton bags since 1885

PK PERCY KENT BAG COMPANY, INC.

John H. Peek, President • R. K. Peek, Vice-President • Andrew O. Peek, Vice-President

Looking Back

(Continued from page 3a.)

Mr. Cutting's name appears in the 1944 membership list as an active member, certificate 3134. George Melvin, Dowagiac, Mich., and a former president, is on the nonactive list. In the 1899 list, his certificate was No. 64.

The 10 members, named above, are the first and oldest members. David Kinaman was the 100th member. G. W. T. Siefert, second secretary, had certificate No. 18; W. P. Stack, second president, No. 20; A. J. Weinel, president in 1897, No. 68; and J. F. Mueller, secretary, 1897, No. 49.

In comparing the 1897 list with that of our 1944 catalog, I find only three names of all who appeared in our first list. These names are: B. W. Dedrick, W. L. Cutting and George Melvin. There are no others that I recognize that were listed 47 years ago. Some, perhaps, dropped membership. Others, and the great majority, have passed away. The younger men who joined and were listed 47 years ago would be about 75 or 76 years old now.

Most of our members then were along 35 to 40 years of age, some older.

Even from the first, we had many of the most prominent millers, head millers and superintendents. Early in the life of the association, we began to have exhibits of mill machinery and mill equipment. This is now a great feature at every convention. These exhibits bring out the latest and most important improvements in milling machinery and equipment. Much credit is due these exhibits and the machinery men for our successful conventions.

In our 50 years of existence, this association has had 43 presidents, including the present president, George S. O. Smith. Fourteen of those who held the office, between my term as first, and W. H. Corrie in 1918, have died. W. H. Speer and E. T. Bauers died a few years ago.

There have been nine secretaries: J. M. Mattingly, G. S. Siefert, J. F. Mueller, B. W. Dedrick, Wells, Hugo Roos, Mat Dillon, C. W. Partridge, and W. E. McCraith, the present secretary. The only living members of these men are Roos, McCraith and myself. Partridge died about one month after our Buffalo convention.

There have been four treasurers—McAtee, Stack, Brantingham, and Herman Trapp, the present treasurer, who has held this office for a number of years. Mr. Trapp also served as president some years before. The other three have passed away.

As I look back over these 50 years, there have been many changes and many events. There have been improvements in machinery and in methods. Our conventions are wonderful in the way of papers presented and in discussions. Our association membership is of the highest known standard and is famous all over the milling world. I have reason to be very proud of the Association of Operative Millers, for it is more than that. It has developed into much of a scientific body comparable to the Society of Mechanical Engineers, etc.

I am now an honorary member and I deeply appreciate the honors and fine treatment accorded to me as No. 1 and "Daddy." It is a great pleasure to meet old friends, acquaintances and the membership in general at our conventions.

"Should auld acquaintance be forgot
"Just keep their memory in our heart
"The clasp o' hands of friends so fine
"As in the days of Auld Lang Syne."

Yes, sir, that's the figure one of our "lightning calculators" came up with the other day. In the six years that V-90 has been on the market well over 200 billion V-90 biscuits have been baked . . . and that's a lot of biscuits!

Millions of dining tables all over America have been the "proving ground" for literally billions of V-90 biscuits. All of which simply adds up to one thing. Even under the most widely varying conditions, slow-acting V-90 has repeatedly demonstrated its superior baking action. In volume, color, and texture . . . in just plain good eating quality . . . V-90 has again and again proved itself.

The success with which V-90 has passed every conceivable test is further confirmed by the steadily increasing demand for V-90 self-rising flour . . . all of which can be attributed to Victor's 42 years of know-how in the manufacturing of phosphates.

. . the slow-acting phosphate that speeds up self-rising flour sales

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New York, N. Y. • Kansas City, Mo. • St. Louis, Mo. • Nashville, Tenn. • Greensboro, N. C. . . . *Plants:* Nashville, Tenn. • Mt. Pleasant, Tenn. • Chicago Heights, Ill.

—BREAD IS THE STAFF OF LIFE—

Production of Flour in Argentina

REFERENCES to the production of flour in the Argentine appeared recently in "Mundo," a daily newspaper published in that country.

It was stated that during 1943, 161 mills out of the 193 officially registered were in operation. The total amount of wheat ground was 2,193,491 tons (73,043,250 bus); the flour obtained, 1,588,916 tons (31,778,320 cwts); and by-products, 592,958 tons (11,859,160 cwts).

The total amount of flour exceeds that obtained in 1942 by 73,587 tons; this increase, according to the statistics of the Ministry of Agriculture, must be attributed to greater consumption and exports.

The average yield of flour from the wheat was 72.4%, whilst the by-products amounted to 27.0%, thus giving a loss of 0.6%.

The flour obtained, classified in types, shows the following quantities in tons:

0000	....	76,407
000	....	1,101,903
00	....	248,869
0	....	129,316
Other types	....	32,421

—BREAD IS THE STAFF OF LIFE—

Methyl bromide is relatively inexpensive at the dosages required for fumigation, highly toxic to all stages of insects, including their eggs, noninflammable at concentrations used in commercial practice, has remarkable powers of penetration and can be used successfully at low temperatures.—U. S. Department of Agriculture Circular 390.

It pays to be a Bemis Customer

BEMIS BAGS

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Saint Louis

23 Plants Throughout The Country

The full resources of materials, manufacturing and fine printing of 14 textile bag plants and 6 heavy-duty paper bag plants—strategically located from coast to coast—are behind every Bemis contract.

NAVY

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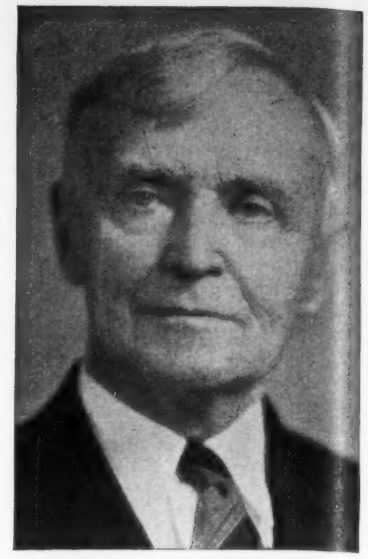
Cereal Chemistry for Operative Millers



Dr. C. O. Swanson

Kansas State College

Variation in Diastatic Activity in Flour

DIASTATIC activity or maltose value is one of the more variable factors in wheat. Studies by several workers have shown that the maltose value varies among wheat varieties grown in the same and different places and among the various classes of wheats and flours. Different mill streams from the same wheat have different maltose values. Commercially milled flours have higher maltose values than flours milled from the same wheats on a laboratory mill. The germination process is one of the most potent factors which may change the maltose value.

Variation Among Wheat Varieties

The wide variation in maltose values among various wheat varieties is shown in Table 1. No really satisfactory explanation for these wide variations has been offered, but it is important to recognize that these variations do exist. The large values for durum wheats have been corroborated by several investigators.

TABLE 1

Spread in maltose values obtained in different wheats and wheat varieties[1]

Description of samples	Milligrams maltose per 10 grams wheat meal
Varieties grown at Manhattan, Kansas	187-268
Varieties grown at Hays, Kansas	168-215
Varieties grown at various Kansas localities	165-320
Tenmarq grown in various Kansas localities	234-304
Varieties grown in several states	210-474
Spring wheats	210-482
Durum	472-690

[1]Swanson, C. O. Some factors which affect the diastatic activity of wheat. Cereal Chemistry, Vol. 12, pp. 89-107.

Representative Flours

The wide variation in diastatic activity or representative flours is shown in Table 2. The much lower maltose values for the soft wheat flours as compared with the hard wheat flours has been found to be generally true. This may be due to a greater resistance of the starch in soft wheats to diastatic attack rather than to an insufficiency of the enzymes. This supposition is based mostly on indirect evidence.

TABLE 2

Diastatic activity of representative flours*

Description of flours	Milligrams maltose per 10 grams
Straight, from mixture of club and soft wheats	95
First patent Canadian spring	154
Patent, 80%, hard spring	292
Patent soft winter, Indiana and Ohio	88
Straight, hard winter, Montana	132
Patent, 95%, Ohio red winter	94

*Grewe, Emily, and Bailey, C. H. Relation of H-ion concentration of doughs to baking properties. Cereal Chemistry, Vol. 4, pp. 261-270.

Classes of Wheat

The maltose values based on the averages from many samples from four classes of wheats are shown in Table 3. The hard red spring and the durum had definitely higher diastatic activities than the hard red winter which averaged only slightly higher than the soft red winter. The maltose values obtained from wheat meals are higher as a rule than those obtained from the flours milled from the same wheats.

TABLE 3

Average diastatic activity of four classes of wheat*

Class of wheat	No. of samples	Mg. maltose per 10 grams wheat meal
Hard red winter	104	168
Soft red winter	33	156
Hard red spring	33	227
Durum	25	234

*Coleman, D. A; Snider, S. R., and Dixon, H. B. The cereal amylases with reference to flour and malt behavior. Cereal Chemistry, Vol. 15, pp. 529-557.

Variations in Mill Stream Flours

In a previous article it was stated that the different portions of the wheat kernel vary in content of diastases. The effect of this is shown by the figures in Table 4, based on mill stream flours. These give the maltose present both before and after diastasis for one hour at 30° C. The amounts of maltose present before diastasis are fairly uniform except in the streams which contain a considerable amount of the bran. The germ itself has a high diastatic value and this is reflected in those streams which are contaminated with the germ.

TABLE 4

Maltose obtained from various mill stream flours before and after diastasis*

Mill stream	Milligrams maltose per 10 grams flour: Before	After
First break	20	148
Fifth break	21	163
First sizings	22	488
Second midds.	20	206
Third tails	32	390
Patent	20	198
Clear	23	188
Bran	91	253
Shorts	95	332
Germ	22	348
Pure germ (reground)	156	430

*Leatherock, L. E; McGehee, H. W., and Giertz, J. W. Diastatic activity in connection with flour mill control. Cereal Chemistry, Vol. 14, pp. 161-181.

Effects of Severe Treatment of Starch Granules

It is a generally known fact that commercially milled flours have a higher diastatic value than those milled on a laboratory mill. Definite figures are given in Table 5. These differences are attributed to the more

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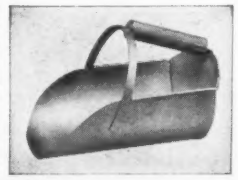

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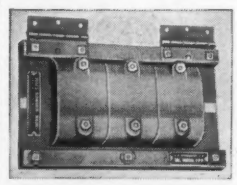

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severe treatment given to the starch granules in the commercial mill.

TABLE 5

Diastatic activity of commercially and experimentally milled flours*

Flour	Mg. Maltose from 10 g. patent flour Com'l milled	Exp't'l milled
Hard red spring, Minnesota	137	53
Hard red spring, Minnesota	113	40
Hard red spring, Montana	171	41
Marquis, Manitoba	120	34
Ceres, Manitoba	147	91
Blend hard red spring	164	38

*Pascoe, T. A; Gortner, R. A., and Sherwood, R. C. Some comparisons between commercially and experimentally milled flours. Cereal Chemistry, Vol. 7, pp. 195-221.

C. R. Jones showed by means of microphotographs that a certain portion of the starch granules are mechanically damaged as a result of the milling process. This is supported by the work of L. E. Leatherock and his associates. They divided a sample of purified middlings into seven portions and reduced each portion to successive degrees of fineness by grinding on the smooth rolls of an experimental mill. The boltings and regrindings were repeated until all the stock would pass successively sieves of increasing fineness. The maltose values obtained on the stocks are given in Table 6. The maltose values were increased until they were about two and one half times as large as in the original purified middlings.

TABLE 6

Maltose values obtained after repeated grindings of purified middlings

Treatments	Maltose mg. per 10 grams
Purified middlings (check)	72
Reground through 42 GG	76
Reground through 60 GG	95
Reground through 70 GG	108
Reground through 9 XXX	110
Reground through 11 XXX	150
Reground through 13 XXX	178

Regrinding on rolls gives the flour particles a rougher treatment than the more gentle action of a ball mill. If the duration of grinding is sufficiently prolonged, however, the maltose values will be increased as shown in table 7. The flour was a hard red spring wheat patent.

TABLE 7

Increase in maltose resulting from regrinding hard red spring wheat flour in a ball mill

Time of regrinding hours	Maltose per 10 g. flour, mg.	Increase, mg.
0	171	..
4	183	12
8	209	38
20	234	63

The increase in maltose values which result from the more severe treatment in commercial mills from regrinding so as to reduce the flour particle size, and from prolonged grinding in a ball mill is ascribed to the following factors: (1) increase in thoroughness of dispersion in water during diastasis; (2) the mechanical freeing of the starch granules from the gluten matrix and (3) injury to the structure of the starch granules. All these would make the starch molecules more accessible to attack by the diastases.

Effect of Fat Removal

Any substance which comes between the enzyme and the substrate will act as a hindrance to the rate of chemical change. Fatty substances may spread as thin films on the substrate as well as on the enzymes themselves. This prevents contact and so slows down the rate of activity. Removal of this fat will enhance enzyme action. Johnson and Whitcomb extracted flour with ether so as to remove all fatty substances. The comparative rates of maltose production before and after extraction are shown in Table 8. The second

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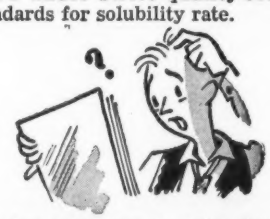

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clear contains normally more fat than the other two and hence the more notable result from the ether extractions.

TABLE 8

Effect of extracting flour with ether on the rate of maltose production

Flour	Mg. maltose per 10 g. flour	Increase
Third middlings, before extraction	152	..
Third middlings, after extraction	190	38
Straight flour, before extraction	142	..
Straight flour, after extraction	225	73
Second clear, before extraction	212	..
Second clear, after extraction	355	143

Availability of Starch to Diastatic Attack

By far the greater portion of flour starch is "raw" or unavailable to the action of the beta amylase which is present. All flours, however, contain significant amounts of available starch. This portion consists partly of ruptured or broken starch granules and partly of starch that has a structure which is less resistant than the main portion. This less resistant starch seems to occur in the largest amount in durum and in the least amount in the soft wheats. This may be the explanation of the high and low maltose values, respectively. The higher maltose value of commercially milled flour is probably due to differences in amounts of ruptured starch granules.

Function of Enzymes in the Seed

The proteins, carbohydrates, fats and other substances were stored in the kernel to be used for the construction of the new plant. These substances have a stability which retains this value for considerable periods. This stability, which is necessary for the preservation of the seed, makes them unfit for use by the new plant. The stable condition must be changed to a mobile one and this is the function of enzymes.

Some of these enzymes are stored in the kernel, probably left as a residue from the kernel building processes. Others are secreted by the activity of living cells when stimulated by an environment of suitable moisture and temperature. This environment starts and promotes the process of germination and in this process the various enzymes which act on proteins, fats and carbohydrates take their part in the decomposition of the large complex molecules. The products are relatively simpler molecules which can be used for building the tissues of the new plant.

In this present discussion the interest centers on the enzymes which act on starch. It is well to recognize, however, that in malted or partially germinated wheat, other enzymes such as proteases and lipases have also been activated. This is an important consideration in the addition of malted wheat or flour to increase the potential diastatic or saccharogenic powers.

Effects of Germination or Malting

Several investigations have been made concerning the changes which take place during germination which influence the activities of the diastatic or saccharogenic enzymes. Of particular interest are the investigations by Markley and Bailey (1934); Sandstedt, Blish, Mecham and Bode (1937); Blish, Sandstedt and Kneen (1938); also a chapter by Kneen in the book: "Chemistry and Industry of Starch," edited by Kerr. The discussions which follow are largely based on these publications.

The fundamental action of amylases is to effect cleavages of the starch molecules. The general degradation of starch as a result of cleavage is of three types: liquefaction, dextrinization and saccharification. It is probable that no one of these occurs to the exclusion of the others, but one of the three may take place to such an extent as to be the principal action at a given stage. Liquefaction of starch results from the disorganization of the starch granule into smaller physical units that remain more permanently dispersed than the gelatinized starch. The large starch molecule $(C_6H_{10}O_5)n$ is broken down into simpler units. During the first stages of liquefaction neither dextrinization nor saccharification seems to take place to any large extent. This starch splitting is caused by the enzyme known as alpha amylase and is developed by the process of germination or malting. The enzyme will convert rapidly a thick starch paste into a watery liquid. The alpha amylase may exist in the ungerminated wheat and its flour but in a latent or inactive state. Not all authors consider that alpha amylase and the liquefying enzyme are the same. Alpha amylase is also assigned some saccharifying power, but when acting alone, this is of a low order. It is practically without ability to saccharify raw or untreated starch.

Dextrins, or the "in-between" products, have various degrees of complexity, approaching simple sugars on one end and on the other polymers of less complexity than starch. Dextrins thus present various degrees of starch degradation short of the sugars.

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Production of dextrins may accompany or be the first resultant of liquefication. No definite dextrinizing enzyme has been identified. The factors which produce the dextrins or intermediate substances do not seem to be differentiated clearly.

The Principal Saccharogenic Enzyme

The production of the sugars is principally due to the saccharifying enzyme known as beta amylase and is the amylase which occurs most abundantly in wheat flour. It has the ability to saccharify starch after it has been rendered susceptible by treatment with acid, by gelatinization in hot water, by mechanical treatment or by a combination of these factors. It will also saccharify starch when acting in conjunction with alpha amylase. The principal sugar resulting from the action of beta amylase is maltose. The glucose which may result from further splitting is due to the action of the maltose enzyme.

The immediate effect of adding malt flour is to provide alpha amylase. This supplements the beta amylase, thereby providing means of saccharifying the amylodextrin fraction which is resistant to the beta amylase alone. Alpha amylase is the most important factor contributed by malt flour since it enhances the saccharogenic activity of beta amylase, the principal sugar producing enzyme.

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Alcohol Production

(Continued from page 6a.)

must come from grains. Also there is a very definite possibility that molasses will not be available to produce alcohol at the prewar level in this country since the tropical cane sugar producing areas are expanding facilities for processing their by-product molasses into alcohol and other commodities. If complete by-product recovery is practiced, and new research discoveries recently developed are employed, it is believed that industrial alcohol from grains can be produced at a cost competitive with the other processes.

Not included in the estimate of the postwar demand for about 250,000,000 gallons of industrial alcohol yearly is the possible use, for some time at least, of alcohol in making synthetic rubber, or the use of alcohol in high octane motor fuels either as motor fuel blends or in injector fuel systems such as are now employed in our military airplanes. Utilization as fuel is by far the biggest potential market for alcohol.

Postwar agricultural surpluses are certain as farm productivity has increased about 25% since the start of the war, and with less land under cultivation. There will be need to expand the markets for this increased productivity or pay farmers not to grow the crops in the postwar period. New industrial utilization of farm crops can eliminate the need for acreage curtailment, and of these new markets, industrial alcohol manufacture offers the most in the way of large tonnage consumption. A stable, high income for the farmer resulting from industrial utilization of farm crops will also result in more employment for the factory laborer, and a high level of material income, so in the postwar economy the manufacture of industrial alcohol from grains and other farm crops should occupy a prominent place.

—BREAD IS THE STAFF OF LIFE—

"High" Grinding

PIGEAUD'S system, which was being practiced at the end of the sixteenth century, can be regarded as the commencement of the gradual reduction system in use at the present time. Pigeaud was a French miller who realized the advantages of reducing the grain in several stages instead of the customary single grinding; this latter procedure must have resulted in the production of a very confused meal containing much finely ground bran. Thus was the practice of "grind, sieve and regrind" brought into being.

Pigeaud is reputed to have passed the wheat some three or four times through millstones and to have used a dressing reel to sieve out the flour made by each grinding passage, the most important feature being the grinding clearance, which was reduced as the flour was gradually released from the bran.

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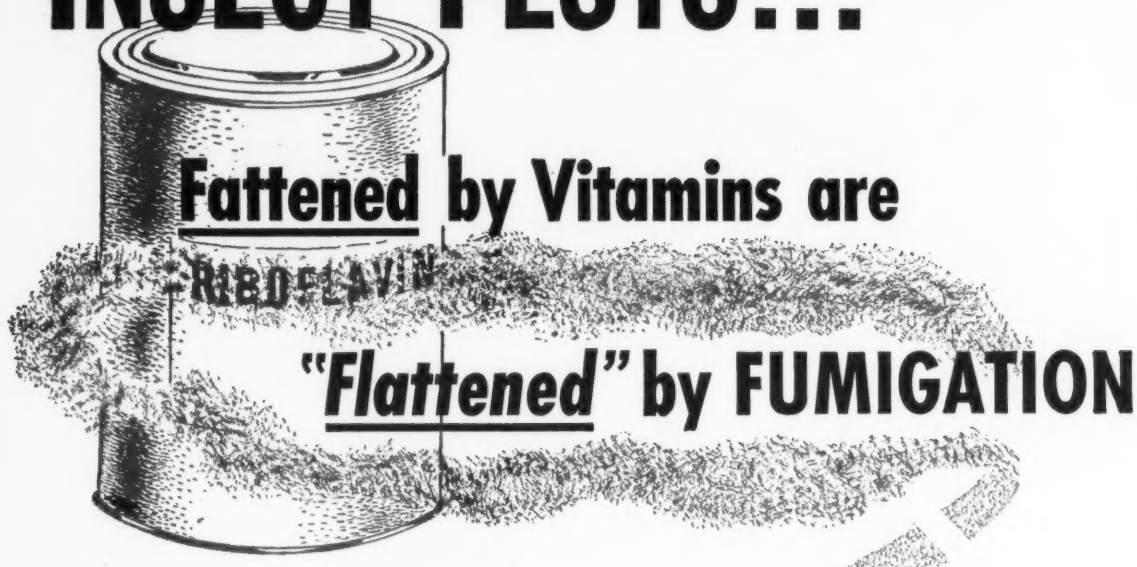

"Pepped up" by today's vitamin enriched foodstuffs, flour beetles and other pests are making themselves more of a problem than ever. As one report put it recently, "... the flour beetle produces many more progeny in enriched flour than in nonenriched flour."

There's only one way to handle the problem, and that's by *fumigation.* Fumigation with Liquid HCN gives you maximum kill at minimum cost... makes your product even more satisfactory to inspectors and customers. For Liquid HCN kills *all* stages of insect life, from egg to adult. It is harmless to foodstuffs and equipment... is safe, quick and convenient to use... is adaptable to all sizes of mills, warehouses, and food processing plants.

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Soft Wheat Flours

(Continued from page 5a.)

baked goods. If it does, it can best do this through the medium of products making use of soft wheat flour.

Undoubtedly there are problems residing in these proposals. However, they provide a foundation on which plans for the future may be built and the advantages to be gained therefrom would be shared by farmer, miller and baker. They appear to be sufficiently constructive and promising as to provide some incentive toward concerted action. It is time to take soft wheats seriously.

Working out from such a program, providing for the supply of the right types of raw material, wheat, the miller, large or small, can look into the future confidently. True, he will have to be courageous and progressive. He will be wise if he will utilize to the highest degree, competent technological services in the conduct of his business. More than ever before he will have to be alert to the advantages accruing from the utilization of modern equipment and up-to-the-minute practices.

Millers Must Look to Future

The successful miller is going to be the one who is intelligently aware of his customers' requirements and applies himself diligently to filling those needs adequately, dependably and uniformly. He will be so farsighted as to utilize technological service for the purpose of learning much about his customers' processes to the end that along with supplying a commodity he will render a service.

He will encourage his technologist to keep abreast with new developments and to undertake some research work, even though it may be in a modest way. It is a mistake to regard the process of milling as possessing little promise for further improvement. Here a fresh, unfettered viewpoint, along with a disposition to "do something about it" might lead to dividend-paying results.

An attitude which tends to oversimplify the process of milling and the design of a flour type must be consciously avoided. Wheat itself is a complex substance and the principles invoked in the utilization of the flour derived therefrom, especially in many of the soft wheat flour applications, are ramified. Consequently, he builds soundly who premises his production on a foundation of knowledge, assures its satisfactory nature through the diligent application of effective control measures and enjoys constant improvement from the consistent effort expended on the search for a more complete understanding of the phenomena involved in the production and utilization of his products.

Diversification of his line of products is a trend of thought the miller might apply in his postwar planning. For example, something might be done with wheat germ to adapt it for more general utilization in human nutrition. The position to be occupied by prepared biscuit mixes, cake mixes and the like might be studied. Perhaps there are industrial applications, as for instance in the field of adhesives, which may have possibilities for some millers and for others opportunity may lie in the direction of the development of a novel and nutritious breakfast cereal.

There is one psychological factor that I think the miller needs to consider as he ponders his future and in bringing this discourse to a close I should like to comment on it briefly.

I have the impression that many millers have developed such a degree of casualness toward their business that in a sense they have developed an inferiority complex. Let me remind you that such should not be the case for the economic and nutritional importance of your products is of the highest degree. Add to this the observation already stated to the effect that the phenomena with which you deal are most complex. Couple these with the aspects of public service that are shared by all who provide the food supply for the nation and it should be readily apparent that the milling industry affords full opportunity for the exercise of business acumen, challenges the most astute mind and provides fulfillment for the desire for self-respect and self-satisfaction. Viewed in this light there should be generated a great degree of enthusiasm and a desire to do a "heads up" job so that by virtue of such realization the miller is psychologically adjusted to cope with his problems in the future, not as they present themselves to him, but as he meets them more than halfway, aggressively, intelligently and courageously.

Editor's Note.—The foregoing article was the text of an address made by Mr. Garnatz at a recent meeting of the Ohio Millers State Association.

——BREAD IS THE STAFF OF LIFE——

When lifting heavy objects, it is well to remember that the back should be kept as nearly straight as possible, and that the lifting should be done by bending the knees.

Kitchen, courtesy of Consolidated Edison Co.

WILL THE THOUSANDS of housewives who turned to commercially baked bread during the past few years go back to home baking as they give up their jobs in war plants?

The answer will hinge to a great degree upon whether the word "ENRICHED" is featured on your sacks and packages of family flour.

For during the period since January, 1943 when War Food Order No. 1 made enrichment of bakers' white bread and rolls mandatory, the public has learned to appreciate that the word "ENRICHED" means higher value, will in fact insist upon seeing it when buying either bread or flour after wartime regulations are rescinded.

For best insurance that housewives will resume home baking, and use more flour than in any recent decade, take the necessary steps now so that ALL your brands of family flour will feature that word "ENRICHED."

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Milling Research

(Continued from page 4a.)

"Vapor pressure measurements indicate that the water added to the wheat in tempering is completely absorbed in 1 to 3 hours. Longer tempering periods may produce desirable changes in the grain which aid in the milling process. The rate of evaporation increases with increased moisture content of the grain due to the higher vapor pressure of the water in the materials. Heating the wheat and tempering water before mixing increases the rate at which water is absorbed by the wheat. Scouring the wheat before tempering also increases the rate of water absorption by the grain.

"Relative humidities which exist under equilibrium conditions in closed systems remain the same under different temperatures, if the moisture content of the material remains constant.

"The results show that it is possible to maintain the relative humidities which are necessary to prevent evaporation in the mill. They also serve as a guide to what range of humidities should be maintained in a study of the effects of relative humidities on the milling process."

These statements show that the research done by financing these fellowships by the Association of Operative Millers was practical and beneficial to the milling industry.

A Variety of Investigations

The department of milling industry has also had a number of graduate students, part of them supported by other fellowships, while a good many financed their own way. A few of the subjects of research which had a more or less direct relation to milling technology were: "Effects of the Amount and Kind of Bleach Used on Flour in Relation to Its Aging"; "Bleaching Agents Versus Potassium Bromate in Baking with Dry Milk Solids"; "Correlation of Baking Results with Some Physical Properties of Dough"; "A Colorimetric Study of Flour in Relation to Its Ash Content"; "Effects of Enzymes on the Physical Properties of Dough"; "Effects of Weather, Variety, and Location Upon the Vitamin B Content of Some Kansas Grown Wheats."

In the near future when the World War veterans return to college, a large number of men will study towards advanced degrees. The facilities for research at the department of milling industry will attract several men to take up problems connected with milling. Several former graduates have already written the department of their desire and, through the provisions of the GI Bill, many will take advantage of this unusual opportunity.

Many Unsolved Problems

The department of milling industry receives federal as well as state funds for research in milling problems. One of the projects deals with the conditioning of wheat. Extensive studies have been made with the use of heat and short rest periods. At present the department is using live steam to bring the temperature of the wheat to 105° F. before the addition of water at 140° F., then the wheat is left to rest for 3 to 4 hours before milling.

Although considerable work has been accomplished on conditioning of wheat, humidities in the mill and over mill stock, grinding, etc., there is yet much to be done. When operative millers meet, questions are asked, such as: What corrugations should be used on the breaks in milling both hard and soft wheat? Which middlings stock can be ground on corrugated rolls? Where should high speed sifters be used? Which is the best purifier and what is the value of purifiers? What is the best type of feed roll to use on breaks, middlings? and so on. No doubt, one can find several good feed rolls in use, but is the best type being used? Adjustments on a pair of rolls are, in fact, crude. The same could be said about some other milling machinery. Research is needed on roll corrugations, roll feeders, roll adjustments, roll speeds, in fact all phases of the milling process. Measurements for blending wheat and methods for judging flour are needed. The new methods in rapid photography should be used to study what happens in the grinding processes. The use of electromagnetic waves in conditioning wheat is an alluring problem for research, also the use of electronics in dust collecting. These are but a few of the many problems to be investigated in milling technology.

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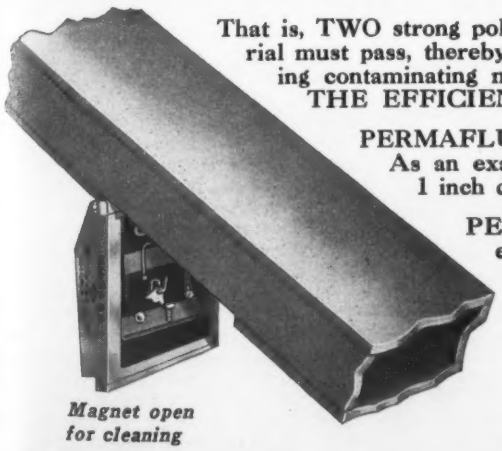

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Pointers for Small Mills

Selling Flour to the Government

By Millers National Federation

TWO agencies of the federal government, the Army and the War Food Administration, are now in the market for large quantities of wheat flour. Both have taken substantial quantities of flour throughout the war, but lately because of the tremendous food requirements for conquered and liberated areas, their demands, particularly the Army's, have risen sharply.

How long this demand will continue at the present level is impossible to predict, but as long as it lasts these agencies want every mill possible to take at least its proportionate share of the business. Virtually all types and qualities of flour are being purchased and the agencies are making special efforts to accommodate millers who have special selling or delivery problems. The Army happens to be in a better position to give such accommodation than WFA at present.

Small mills as a class have sold flour to the government to only a limited extent for a number of reasons, not the least being the fear that dealing with the government was difficult and tied up with red tape. The government does have procedures which vary somewhat from usual commercial practice, but these procedures are not really hard to follow once they are understood. The salient features of the buying procedures of both the Army and WFA are outlined below for the benefit of all mills which have not sold these agencies.

Army Flour Buying

The Army has two principal flour buying programs, one to supply army and navy service bakeries; the other (the green dot program) for civilian feeding in territories occupied or liberated by our armed forces. For the former is required hard wheat bread flour, and a very small amount of cake flour, both high quality and held within rather narrow specification tolerances. For the green dot program, the Army has purchased a wide variety of flours, requiring only that they produce a satisfactory loaf of bread. Hard and soft wheat straights and stuffed straights, and soft wheat cutoffs have been bought.

When the Army is in the market, it issues an invitation to bid. Any mill can be put on the mailing list for these invitations by making request to the appropriate Quartermaster Depot. The addresses of the two buying depots and their respective areas of purchase are: Chicago Quartermaster Depot, 1819 West Pershing Road, Chicago 9, Ill., for the area east of the Rockies; and California Quartermaster Depot, Oakland, Cal., for the west coast.

In submitting a bid to the Army, the miller wires all information called for in the invitation to bid, which usually includes: quantity, price, basing point, ash content, and container. If the Army desires to accept the bid as offered, a wire acceptance is made. If the Army desires to negotiate on some terms of the offer, these negotiations are carried on customarily by phone, and if a sale results, wire confirmation is issued. A formal written contract is also issued but these are sometimes delayed and may not even be received by the time shipment is made. If a miller has flour which he wishes to sell to the Army but which does not meet the Army specifications precisely, he should not hesitate to make the offer. An average sample of the flour should be sent to the appropriate quartermaster depot and a letter directed to the contracting officer de-

Editor's Note.—The accompanying article is Small Mills Bulletin No. 1, sponsored by the small mills committee of the Millers National Federation. In its announcement of the bulletins, the committee states that the publications are intended primarily for the small mill members of the organization and will deal chiefly with problems which are peculiar to that segment of the industry. The article was written by a staff member of the Millers National Federation. Other bulletins to be issued will be prepared by members of the committee.

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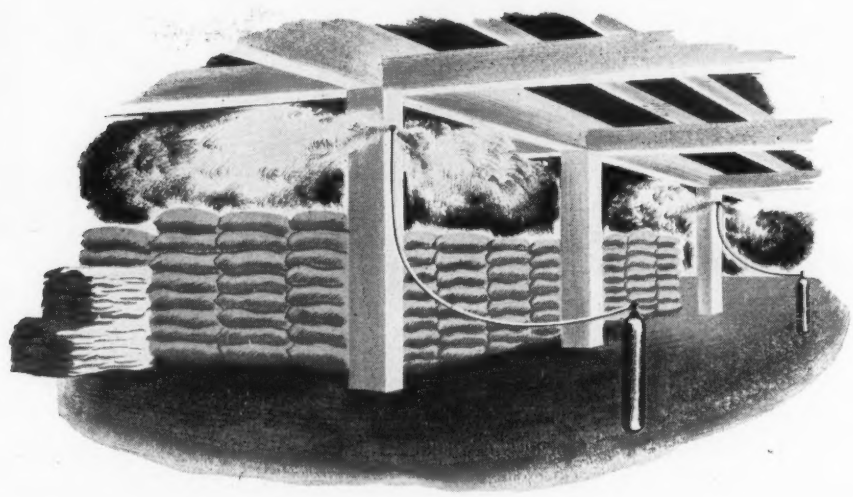

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scribing the flour, and making an offer of sale. When the sample has been analyzed, the contracting officer will contact the offerer. The Army prefers to buy flour in lots of 3,200 sacks or more, but in order to accommodate small millers, it will on occasion buy as little as 800 sacks. Offers should be made in multiples of 800 sacks, unless the miller can load 1,000 sacks to the car. Sellers of hard wheat flour should have a copy of Army flour specifications CQD 346. Specifications for soft wheat flour are stated only in the invitation to bid. The hard wheat flour invitations contain a provision as to maltose content. While the Army advises that this should not bother any miller who does not use an excess of sprouted wheat, millers should not consider their flour safe in this respect without regular laboratory analysis.

The Army will supply each seller with an instruction booklet titled "Why and How of the Vendors Shipping Document." The vendor's shipping document (or VSD) is a form designed by the Army to serve as a combination invoice and shipping notice. A set of VSD's is supplied to cover each car to be shipped and each set may consist of from 11 to 29 copies. The information to be inserted by the miller on each copy of the set is the same so it is just a problem of duplication. (The "unit cube" is required to be shown on this form for certain shipments. This refers to cubical displacement and is 2.16 per 100-lb sack of flour. The "total cube" is 2.16 multiplied by the number of filled sacks).

The VSD's are supplied the shipper along with the shipping instructions, the bag marking instructions, instructions for wiring advice of shipment, certificate of analysis blanks, and the government bills of lading (unless a commercial lading is to be used). The certificate of analysis is to be prepared by the mill's laboratory or by a commercial laboratory. The government bills of lading come in sets of about 10 copies. Complete instructions on the routing of the various copies are given.

If the miller will take a little time to study the various instructions and then carefully follow them, he should experience no difficulty in selling the Army. However, the procedures are rather inflexible and if they are not strictly adhered to, the results are likely to be very unsatisfactory to both parties. Payment for flour delivered should be received about a month after delivery is made and the required papers properly executed and filed.

Purchases by WFA

The War Food Administration buys flour principally for lend lease and for U. S. territories and possessions. Several kinds of flour are purchased, but WFA does not, at present, buy the wide variety of flours the Army purchases. All purchases now are for export.

When WFA enters the market it issues an announcement of intent to purchase. This announcement is circulated to all mills on the mailing list which are in the proper geographical location in relation to the ports through which the flour must pass, and which can supply the type of flour desired. The announcement states the kind of flour to be purchased and contains miscellaneous contract terms. It also refers to a "Standard Contract Conditions" form (Form PBT 400) which contains other terms that are a part of each flour contract with WFA. Millers should have both the announcement and Form PBT 400 and know their provisions before submitting a bid to WFA. L. J. Morgan is the WFA flour buyer. His address is: Procurement and Price Support Branch, Commodity Credit Corporation (O S), WFA, Washington 25, D. C. All communications to WFA by millers should be directed to Mr. Morgan with the exception of offers of flour made pursuant to an announcement. These should be directed as prescribed in the respective announcement.

After a sale is made, the miller will receive a copy of Form FDA-324 "Information for Vendors" which contains general instructions for shipping and making claims for payment. Later will come the "Notice to Deliver," Form FDA-194, together with the "Document Distribution Instructions," Form FDA 345, and government bills of lading. Claims for payment are prepared by the miller on voucher form, "Standard Form 1034." A separate form 1034 need not be prepared for each carload. A continuation sheet form may be obtained from the WFA which enables the seller to prepare one voucher to cover all deliveries covered by one notice to deliver. Payment is usually made by WFA within a month to six weeks after a voucher, properly supported, is submitted.

If it can be avoided, no flour should be shipped to a government agency which does not meet contract specifications. Some deviations from the contract will be permitted, but in all cases a penalty will be assessed which may be somewhat more than the market differential.

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Developments in Weather Forecasting

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A Better Understanding of the Movements of Air Masses Is One of the Scientific Developments of Our War Effort

By Clarence Swendseid
Mears-Swendseid Research

ONE of the more important battles of this war will be won or lost over the Aleutians and over the Gulf of Mexico. The battle will not be waged between aircraft but between air masses, the movement of which determine the type of summer weather over the corn belt and Great Plains.

With less favorable crop weather, shortages of agricultural labor, inadequate farm equipment, the United States food production is almost certain to fall off in 1945 and the battle of the air masses will have much influence in determining how much food this country shall produce.

An air mass is an extensive portion of the earth's atmosphere having identical characteristics horizontally. These characteristics are predominately from its place of origin, that is, from the area over the earth's surface where the mass previously had been stationary for some time and from which it began its global travels. These characteristics are sufficiently fixed so that air masses may be named geographical. The air masses over the Great Plains are called the polar continental and tropical maritime. The polar continental air mass originates in Alaska, Canada and the Arctic Ocean. Modified over the United States and Canada as it moves, it takes on new characteristics. A highly dry mass, it is responsible in some instances for "cold waves" and produces extreme cloudiness at the time of maximum surface heating. The tropical maritime air waves originate in the Gulf of Mexico and northern Mexico. The original characteristic is high stability, warm at the surface, the highest of temperatures in the summer and a tendency not to be affected by low clouds or fog encountered in its travels to the north or northeast.

Great Plains Weather

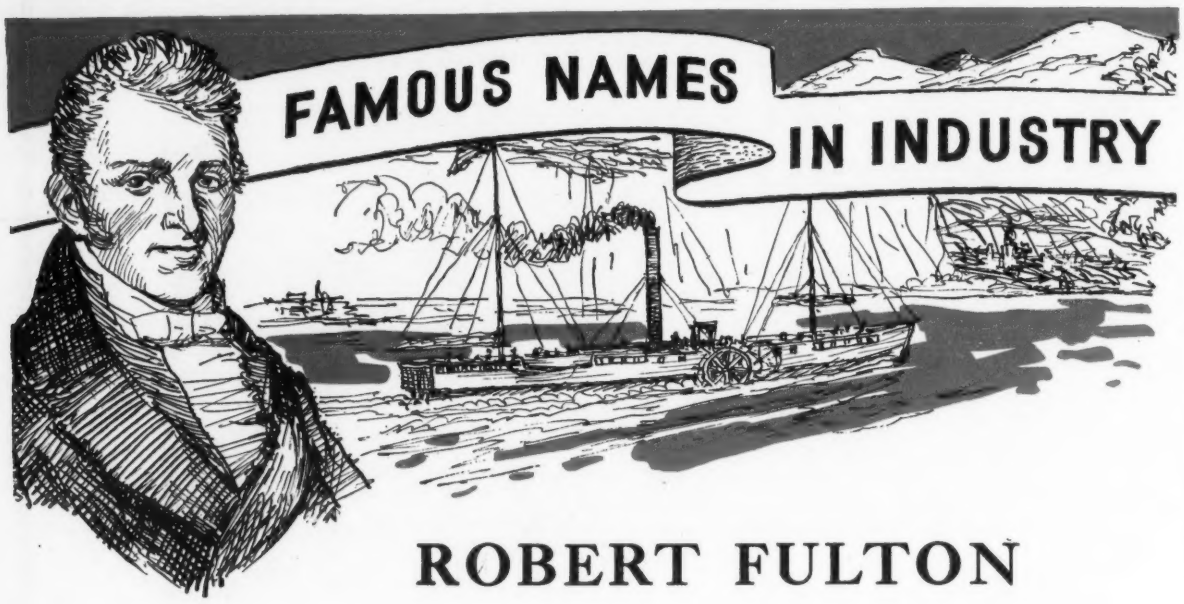
The corn fields of the midwest and the vast grain fields of the Great Plains constitute the principal sources of the cereal grains, the keystone of the allied nations' food supply and the hope of the millions of hungry people recently liberated in Europe. In the course of a few days, those fields that hold the promise of much food can be turned into dry shriveled stands of grain, burned by a wind from the fires of Vulcan. These winds that turn the green and growing crops to brown, sweep up from the south and west across the Great Plains. The more humid eastern area of the corn belt can usually be relied upon for some kind of crop. The more humid areas embrace the Ohio River basin, including the states of Ohio, Indiana and Illinois. The subhumid area takes in the tall corn country, eastern Nebraska, eastern Kansas, all of Missouri, Wisconsin and southern Minnesota. The semi-arid Great Plains stretch from the prairie provinces of Canada on the north to the Texas panhandle section on the south. It is here on the Great Plains that the battles for food can be won or lost, for the weather in this semi-arid region is indeed moody, since losses from drouth come more often and are more severe.

An old song says that woman is fickle. So also is weather in the Great Plains. In one mood it seems like a loving housewife. Next day it lashes out with a devastating fury.

In a desert, one knows what to expect of the climate and plans accordingly. The same is true of the more humid regions. However, men have been often disillusioned by the semi-arid regions because they are sometimes humid, sometimes dust bowls and sometimes a hybrid cross between the two. To live with these moods, one must be wise and cautious.

Climatic Basis for "Moods"

The moods of the Great Plains have a climatic basis. Normally the "tropical maritime" masses from the south curve eastward, and so never reach the Great Plains. Most of the warm air masses that do reach the plains pass over northern Mexico but it is so dry to begin with that it has little or no water to spill when it is forced up by the cold polar front from the north. One questioning these regular movements of warm air masses has but to reflect as to the regularity of the phenomena of the Gulf stream or the Japanese current. The



ROBERT FULTON

Few are familiar with the fact that Robert Fulton was a capable and successful portrait painter. His craftsman's instinct stood him in good stead when all the world was mocking at the silly steamboat upon which he was working. The crowd that came to jeer the maiden trip of the "Clermont" remained to cheer instead, as the little boat chugged up the Hudson against wind and current.

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moist air from the Gulf, however, does not avoid the Great Plains. Most of the precipitation there, as farther east, is due to the incursions of "tropical maritime" air. Occasionally masses of especially moist tropical air enter the plains and collide with dry polar air with such a force that violent rainstorms and heavy precipitation occur. Thus, throughout the Great Plains region, great variability of rainfall from season to season is produced as a result of differences in the moisture content of the northward moving air masses, the routes followed, and the force of the impact between the warm and cold air forces.

Temperatures and Air Masses

The excessively high and low temperatures which are characteristic of the plains are also associated with the interaction of these tropical and polar air masses. The displacement of warm tropical by an advancing mass of cold polar air may bring about a drop in surface temperature of as much as 60° F. in a few hours.

At present, scientific research in long-range weather and crop yield forecasting is proceeding cautiously, enlarging our understanding of the factors which control weather changes. A cursory examination of some of the long-range weather and crop yield records shows definite patterns in weather and crop yield changes that tend to be repeated from one year to the next, or from one decade to the next. But science will never adopt these theories until recognized meteorologists find the direct cause of the phenomena. Scores of men have labored with cycles and learned that the tendency seemed sufficiently persistent to warrant a systematic analysis. As a result there are over 50 "climatic cycles," varying from 273 months to nearly a century. Each man who has proposed one or more of these cycles has become convinced that he has found a particular rhythm in which climatic conditions have changed from a minimum, through a maximum, and back to a minimum observational value. There is a true significance in some of these cycles, but it is also apparent that the climatic experience resulting from the various combinations of cycles is indeed complex.

A student of early day Chinese culture writes, "Centuries ago the Chinese worked it all out according to the stars, the sun and the moon, and their influence upon the tides, and all simple means of predicting hot days and cold. Even in their yearly calendar they know with some degree of certainty just what to expect in any given year. The weather and events repeat themselves, the Chinese have discovered, so they devised a definite cycle. To these years, some good, some bad and some just so and so, they have given names, each with a symbolic meaning. When I was told in February of 1942 that it was going to be a wet and rainy summer because it was the Year of the Water Horse, I believed it when September rolled around. 1943 was the Year of the Water Ram; 1944 was the Year of the Wood Monkey and 1945 the Year of the Wood-Cock."

Chinese Weather Prophets

It is evident that these early day Chinese scholars discovered the tendency to be sufficiently persistent to warrant the systematic analysis to devise measures appropriate for these problems. It must be admitted that even centuries ago there were learned scholars in China who had adequate statistical training in tests of statistical significance to note the meteorological factors that were responsible for such long period repetitions. There are two Asiatic air masses, the tropical Pacific, originating in mid-Pacific areas. The standard path of the air mass is across South China. It is the principal cause of all South China weather, its movements being caused both by cyclonic and anti-cyclonic conditions. The polar Siberian mass covers nearly all of the northern portion of Siberia. The movement of Siberian highs is responsible for carrying the North Pacific and its meetings with the tropical Pacific air masses. It is the principal cause of the Japanese and Philippine Islands weather.

Although few Americans are aware of it, the world has just suffered a major crop disaster. This drouth encircled the world "down under," in other words, it spread through the southern portions of the continents of Africa, South America and Australia. The Argentine harvest is estimated to be 60% of the previous season. The South African countries, never self-sufficient, suffered prolonged drouth. Reports coming in from Australia claim that the drouth of 1944-45 was the most disastrous in the history of white men on that continent. Press notices tell of the strange phenomena, how the sun was obscured by a haze during the drouth, how the sun rose like a huge red ball every morning. The same phenomena was noticed in our drouth years in the dust bowl area.

Is Weather Cyclic?

The question naturally arises, when will this phenomena recur on the Great Plains? There are too many farmers and ranchers in this favored semi-arid Great Plains area who believe that this area will advance and be prosperous for an indefinite period. That thought unfortunately is part

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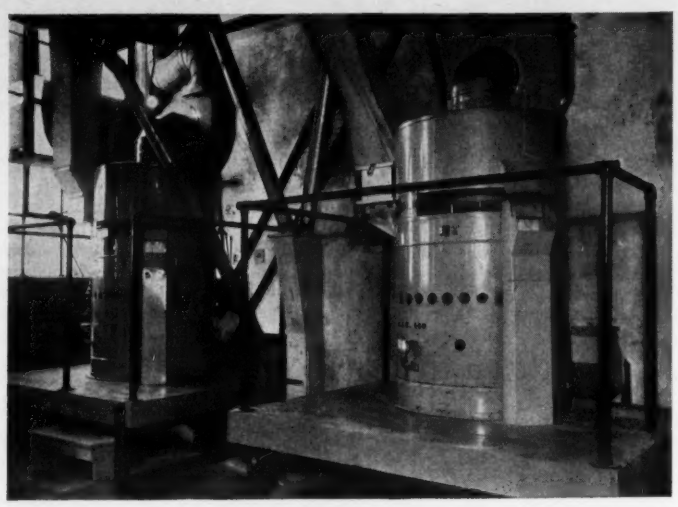

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of the western spirit of optimism, for the Great Plains will prove to be inconstant. At this very moment the farmers of Florida, Georgia, the Carolinas, Virginia, New Mexico and California are experiencing a drouth which evidently means that the phenomena is moving northward and in the course of time will hit the Great Plains. It is natural to believe that if the tropical maritime air masses that originate over the Gulf and northern Mexico prove to be dry they will carry little moisture on the northward trip across the Great Plains.

Weather Must Be Understood

Climate and weather are therefore basic natural resources, but they must be understood if they are to be turned to good advantage. As civilization has become more complex, our dependence on intimate and accurate knowledge of climate and weather has increased. The primary object in investigating cycles of rainfall or cycles of economic phenomena is that the knowledge of the constant recurrence of the cycles will place one in a position to foresee and utilize the dependent phenomena.

The home front has heard very little about the resourceful work that the army and navy weather squadrons have done in long-range weather forecasting. The need for the clearest understanding of meteorological phenomena created by aeronautics was intensified when aviation became a military force of the first importance in World War II. By the time of the campaigns of 1944, the aerologists of all the military air forces had made weather forecasting an offensive weapon of modern warfare. This tactical use of weather required the perfection of techniques of foretelling weather conditions most suitable for the carrying out of aerial operations with a minimum of flying hazards, a maximum of concealment aloft at a given objective, a maximum of horizontal visibility at a fixed altitude throughout the flight. Long-range forecasting is playing a great part in all military operations on sea, on land and in the air.

In this motherhood of necessity, aerology bore rich fruit. Outstanding was the practical application of a new and extremely revolutionary system of long-range weather forecasting which involved analysis of small variations in heat sent earthward by the sun studied in conjunction with cyclical factors. This method was developed at the California Institute of Technology and its perfection under the stress of military operations was deemed so important that it is guarded as one of the major military secrets of the Allied forces.

When, prior to World War II, commercial airlines realized that their operations were being greatly limited by lack of accurate weather data, their research meteorologists took up, developed and expanded a new, then little tried method of air mass analysis pioneered by such noted Norwegian scientists as V. Bjerkness and H. Solberg, who first glimpsed the magnificent drama of the forces involved. This system of forecasting, instead of basing predictions upon moving areas of high and low pressure, predicated them upon a study of the interactions caused by the meeting of contrasting masses of air. The air mass system not only extended predictions for long-range use instead of days, but also made possible comparatively accurate forecasts of upper air weather.

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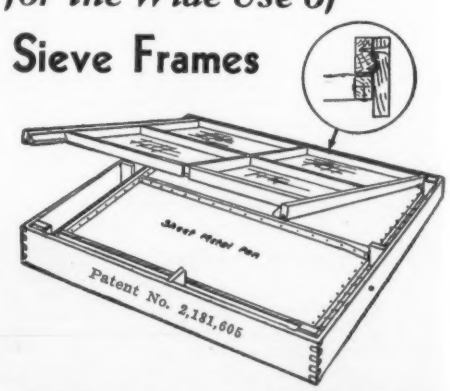

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Increasing Production . . . . . and Efficiency

Is the Sifter Your Mill's Bottleneck?

Editor's Note.—The accompanying article was prepared by a member of this journal's staff after discussions with several equipment engineers. The drawings were supplied by W. E. Norvell, Nor-Vell Sieve Co., Kansas City, Mo.

IS the sifter your bottleneck? In these days of high-pressure milling when every bag of flour is needed, and every mill must run the very limit of its capacity, flour millers are eager to find ways to streamline their production, to make their mills more efficient. In doing this they must lose none of their traditional flour quality, and in many cases they will find they can improve it.

While investigating their production, many millers find that their sifting equipment is the bottleneck. Many millwrights and others who have worked with sifters all their lives probably do not understand as well as they should the principles that govern the operation of a sifter. These principles, when properly followed, apply exactly the same to every sifting operation, with variations, of course, for particular mills and particular mill streams. The following rules should be applied:

(1) The sifter must be exactly level and plumbed properly. The correct way to do this, is to plumb the main drive shaft on both sides. Do not plumb the box. After the shaft is plumbed the reeds should be clamped. The sifter then is in condition to gyrate properly, run smoother, sift better, and do a more uniform job.

(2) The sifter should be flowed properly, with the sieves graduated according to the load, and the stock flowing freely through the sifter with no forcing or overloading.

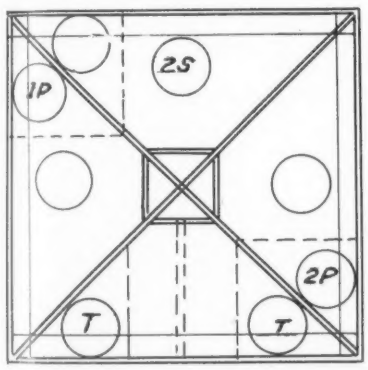

Fig. 1—Shown above is a diagram of the bottom flow section for a Nordyke & Marmon sifter and what would be necessary to make a straight flow from the top to the bottom of the section so that the miller can determine when he has an even flow on both sides of the sifter.

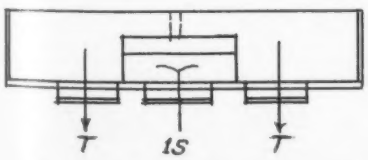

Fig. 2—Shown above is the side elevation of the bottom flow section of a Nordyke & Marmon sifter which allows ample room for the first scalp to discharge.

(3) Every sieve should be in good condition. Leaky sieves defeat the purpose of the sifter.

(4) Adequate space should be allowed for the "overs."

(5) Each section should be split properly in order to divide stock evenly on each side of section. If the stock is split evenly it is easy to increase the capacity. Provide two outlets for the tail, one for each side of section. Then you can see which side is overbolting and which is bolting dry.

One of the chief difficulties with sifters, according to those who have worked with them for many years, is the fact that so many millers insist on forcing the stock through them, rather than permitting the sifter to do only the job intended for it, and nothing more. In attempting to force the stock the sieves become overloaded, and the stock that comes out of the sifter is misleading. Frequently upon inspection the millers will find that some sieves are bolting light and fail to realize that the reason is not because the sifter is failing to get sufficient stock, but that some sieves are overloaded and the stock is not flowing properly.

When the sifter is flowed properly and stock moving freely, with the sieves graduated according to the load, it prevents forced bolting under pressure, which so often

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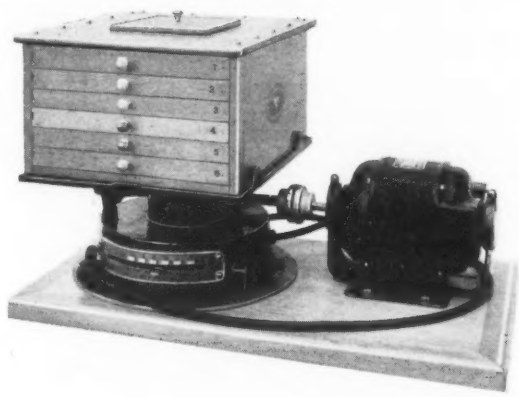

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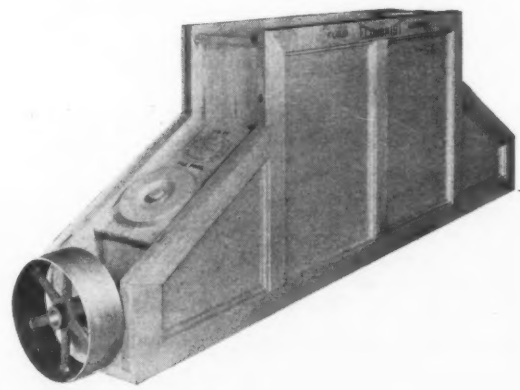

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happens in an improperly flowed machine.

With the clothing in good shape and tight, with the pans clean and operating conditions proper, adjustments in the flow of the sifter itself are very simple. However, any adjustments, whether made on the speed of the machine, or the throw, should be made gradually. Drastic changes will throw the machine so completely off from its previous performance that there will be no measuring stick by which to judge results. One little change at a time will give the smart miller an indication of what is being accomplished, and the correct result can often be arrived at after a little experimenting.

Production often can be increased by actual replacement of sieves which are obstructing the flow of stock. Up until a few years ago all quarter-turn sieve frames at the bottom of the cuts on Nordyke & Marmon and Great Western stack sieves had a full pan which did not allow enough room for the full load on the sieve below. These old style quarter-turn sieves can be replaced with the new type quarter-turn sieve which does not have the pan and will allow 1⅛-inch space instead of 11/16 inch space as in the old style sieve with the full pan. These quarter-turn sieves can be used for either righthand or lefthand travel of stock.

Freedom of movement is essential in manufacturing good flour, and in being able to control the quality of the product.

The tendency of the busy miller in these days is to permit a machine to run as long as possible without attention, particularly in the case of a sifter. This results in tragic consequences in production of flour. When it is out of balance, overloaded, or when the cloths are in bad condition, the sifter upsets the entire milling operation and destroys the good results the miller seeks to obtain from the rest of the milling operation.

A diagram of a single section with straight flow from top to bottom is shown in Figure 1. By removing the upper wood plate on top of the flow section of a Nordyke & Marmon sifter, it would not entail a great deal of work to change one side of the flow section so there would be two tails from the section for inspection to determine which side is running heavy or light.

The flow of stock shown in Figure 4 will keep the stream divided over the balance of the flour cloths to discharge to one side for the first product and the throughs of the duster to the opposite side for the second product. This type of flow will enable one to determine from the discharge of the tail outlets whether there is an even amount of stock on each side of the section.

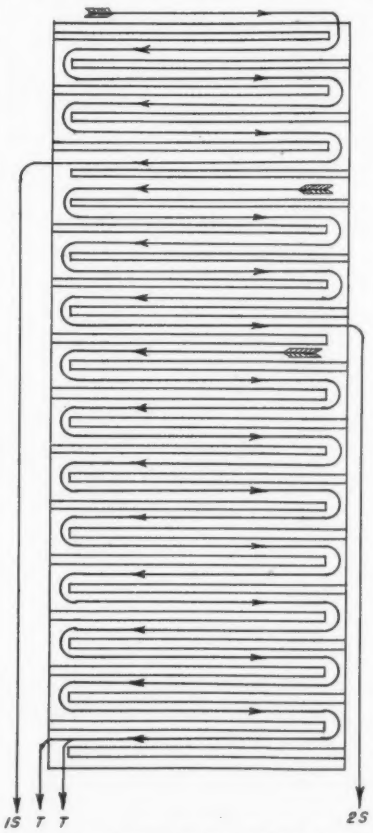

Fig. 3—Shown in the sketch above is the travel of the stock for the overs of a 27-section sieve.

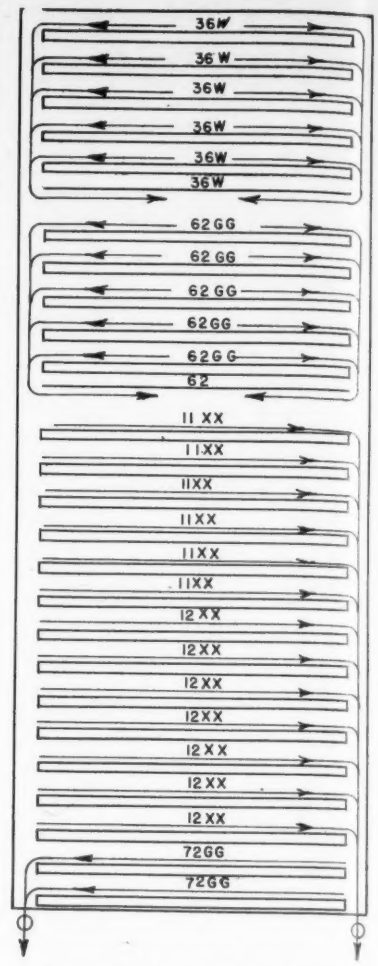

Fig. 4—The travel of the throughs of a 27-section sieve is shown above. Note that the throughs of the top cut are divided and the bottom sieve in the top cut does not have any pan. This arrangement allows the stock to come in from each side on each half of the top sieve of the cut below. The throughs of the second are flowed similarly, allowing a positive separation of the two halves of the section as far as the overs are concerned.

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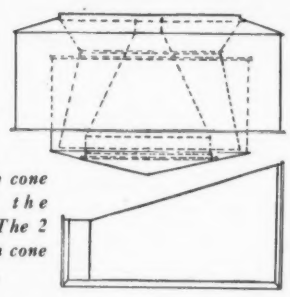

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Milling 60 Years Ago

Balancing Break Rolls and Sifters

By Louis H. Gibson

Editor's Note.—The now celebrated book, "Gradual Reduction Milling," written by Mr. Gibson in 1885 was the source of the accompanying article. The author was a leading authority in the field of milling technology during the transitional period from buhrstone to roller milling and it is interesting to note that Mr. Gibson's exposition of the fundamental principles of milling is as sound today as when he wrote the book 60 years ago.

FOURTH break rolls require more grinding surface than any of the other breaks, but usually have the same amount as the third, which is about as near as one can get to the desired result in actual practice. The reason this extra amount of grinding surface is required is that there are a larger number of pieces than before, without a corresponding reduction in the bulk of the pieces.

The corrugation for the fourth break is usually 16 or 18 to the inch —16, probably, more often than 18 at this time.

The scalping reel for the fourth break should be clothed with No. 24 wire or its equivalent in grits gauze. Grits gauze, by the way, lasts very well on the fourth break. The other breaks will cut it out too rapidly to justify the expense. The length of the scalping reel for this break on a 400- or 500-barrel mill would be 13 or 14 feet.

It is a common thing in many mills not to open the first three breaks when shutting down the mill, but merely to cut down the feed.

From the fourth break scalper there is the natural drop to the fifth break, and it is a drop in the sense of a descent from one elevation to another, and also from a higher quality to a lower. At the best this fifth break stock is questionable in quality, and more particularly as to the quality of the middlings. Where one is running the four middle breaks together —the second, third, fourth and fifth —if he will take the fifth break out, he will notice a wonderful difference in the quality of the middlings. It will show with all the middlings which pass through a No. 4 cloth, or finer. Whereas, it might have contained fine, fibrous, red stock in case of the fifth break middlings being run in, it will show much cleaner with them left out.

There is quite a quantity of coarse middlings; in fact, the quantity must necessarily be very small, owing to the thickness of the stock before it is reduced, and its generally depleted condition. However, there is quite an amount of stock which will go through coarse cloth. It is bran with a small amount of adhering middlings. Altogether this substance is more

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like tailings, and should be treated as such. It is not an easy matter to get the fifth break fine middlings in a condition which will justify its reduction into patent flour. But they will make a most excellent quality of clear or bakers,' if reduced on smooth rolls.

Whatever may be said about the middlings from this break, the flour belongs, beyond question, with the clear; that is, the flour made during this reduction. It is relatively of a better quality than the middlings. The quality of the stock going to the fifth break machines—its size, texture and general appearance—is an indication of the care and skill given in grinding on the previous breaks. It is here that previous good or bad work shows itself the plainest, and it exerts a marked influence on the quality of the product of this reduction. If it comes to these machines in bad order, no work, however skillful, can redeem it.

Twenty corrugations to the inch seems to be the accepted cut for rolls for this break. No. 26 wire or the corresponding size of grits gauze is used for the scalpers. Thirteen or fourteen feet is a good length for a 300- or 400-barrel mill, and, for the reason previously stated, about half that length would do for a mill of from 100 to 200 barrels.

Comparisons are often made for a 400- or 500-barrel mill similar to the above. This does not imply that this work is done for 500-barrel millers, but rather for the purpose of comparison and proportion. One has to take something for a basis in order to work both ways. There are a great many more mills which are smaller than this than there are of this size and larger. In fact, the writer judges that the number is so much greater that the aggregate output from them would be immensely larger.

Four vs. Five Breaks

A successful millbuilder told the writer that all four-break mills should have five breaks. He said that in all mills where they placed a four-break combination machine, they sent the tail of the last scalper to a single pair of rolls to clean the bran. It is customary to speak of all reductions by corrugated rolls as breaks.

In a six-break mill the first four reductions are, in practice, breaks; the fifth and sixth, cleaning reductions. They scrape the bran, however. The writer has no disposition to complicate the general expressions or nomenclature of milling operations by inviting a distinction in the naming of these reductions.

Handling Fifth Break Stock

There is a general disposition to separate the fifth break stock from the usual stream of material from the middle breaks. While it has been the custom to run the products of the second, third, fourth and fifth breaks together, and bolt out the stock as though it were one product, there is a disposition to draw out this fifth break stock and bolt it by itself.

The flour is nice and bright, but the middlings do not belong with those from the second, third and fourth reductions. They are red, fibrous, and generally irredeemably bad. Their condition may be improved, but the purification cannot be effected to such an extent as to make a desirable proportion of middlings suitable for patent flour. This may be proved by undertaking to purify these middlings by themselves. To be sure there will be a small proportion which is all right, but there is shown to be such a large amount of bad material that the evil of running this stock into the best flour in the mill cannot be seen. All this applies with greater force to winter than it does to spring wheat milling, though it may be considered as applicable in principle to the latter. It may be said that the taking out of this fifth break stock from the body of the mill from the stream of products from the three previous breaks will reduce the proportion of patent flour. Not so; it will reduce the bulk of stock going to the purifiers, and the bulk of purified middlings may be slightly reduced; but the perfection of their cleaning will be more apparent, and when it comes to their reduction into flour, it will be found that as much or more flour will be taken from the reels where the middlings are bright and clean than where they are less bright and clean.

Middlings Reduction

If these middlings were absolutely pure—something which never happens—they might be reduced so that their whole bulk would go into flour. As it became apparent that the middlings were less clean, it would be found that the proportion of loss would be much greater than the proportion of stock which went to make these middlings unclean.

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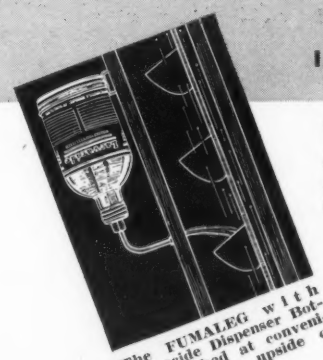

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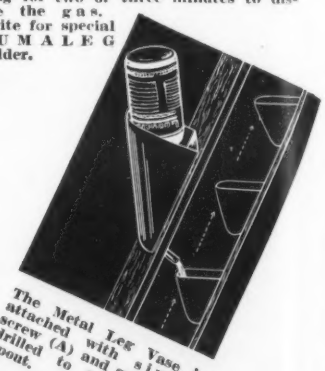

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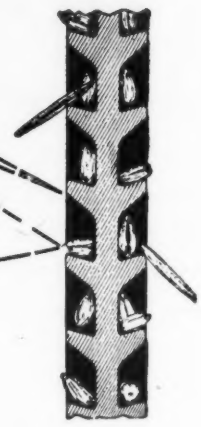
Answer: It's Too Long to Fit into a Carter Disc Wheat Pocket!



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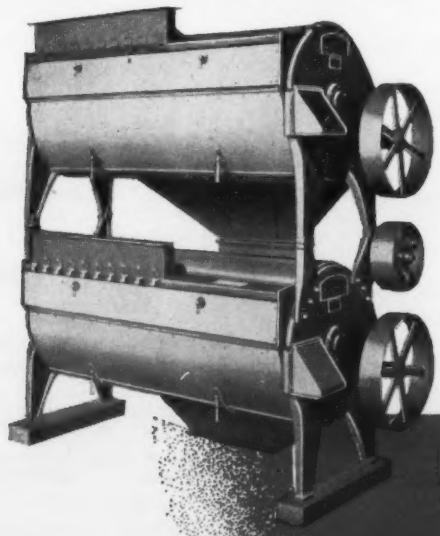

Shown at left are two Carter Disc Oat Machines mounted one over the other.

HART-CARTER COMPANY

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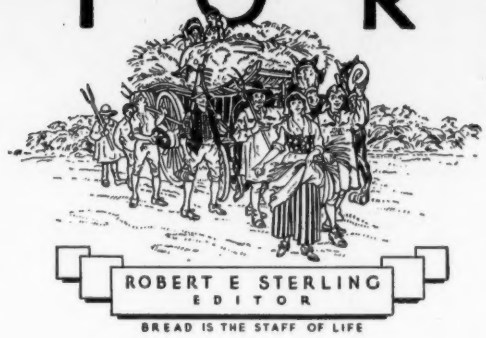
EDITORIAL



ANCIENT AND HONORABLE

NOT in mere flattery do we hang up these adjectives as a label for the congratulations that are appropriate upon the golden anniversary of the Association of Operative Millers. We are not the first to use them of an industry paralleling more closely and continuously than any other the upward path of civilized mankind. The magazine Fortune recently called it, facetiously, the second oldest, but that, certainly, is old enough. And in respect of the accolade of honorable, it yields to none.

Carlton D. McKenzie, president of the Millers National Federation, had all this in mind when he said to the members of A. O. M. in his address to this year's "convention by mail": "You men are engaged in the operative branch of a truly great industry. Yours is one of the oldest and most essential of all the industries of the world. The members of the Millers National Federation pay tribute to your courage, your patience and your ability."

But Mr. McKenzie was not willing to stop upon the note of compliment and congratulation. As another miller had done some years ago (James F. Bell to the industry's management) he brought warning of the danger that lies in being content with antiquity and prestige. Said Mr. Bell to merchant millers:

"In the entire history of flour milling there have been just two really significant contributions made by science. The roller process and the purifier were fundamental changes in the technique of grinding grain into flour, but one of these is a century old, and the other three quarters of a century old. . . . Outside of the mechanics of our trade, in the fields of merchandising and servicing, we have made astonishingly little progress. All around us we have seen a world of incredible changes; we have seen the human mind opening new frontiers, discovering new fields for the enlargement of life. And what have we been doing? We have just gone on being ancient and honorable."

Mr. McKenzie to today's operatives; "The milling industry must do better in the postwar era than it did in the prewar period because assuredly it will not be allowed to remain in its present position unless it makes a determined effort to move forward."

* * *

The need for advancement is granted on all sides in the milling fraternity, no less on the side of merchandising than on the side of manufacture. But it is not agreed that any fundamental change in processing is essential. The emphasis of operative millers themselves is upon further refinement of present processes and a bold and continuous extension of research and experimentation into such inviting by-product fields as fermentation, and more especially into those scientific areas vital to the flour industry but lying outside the mill—plant breeding and grain growing, and the vast field for exploration that has been opened by the newer knowledge of nutrition and utilization, a field toward which vitamin and mineral enrichment have so powerfully pointed the way.

The Association of Operative Millers has a research committee. Addressing himself to this group, which he believes should be the strongest and most active of the organization's task forces, Harry A. Bullis urges it "to forget about the common, every day subjects of milling operations—roll surface, corrugations, bolting surface, sifters versus reels, and such incidentals." The committee, he says, must be capable of standing aside and viewing the industry from new vantage points. It must study other industries, the progress made and the equipment used. It must follow scientific developments and study the application of such advances to flour milling. "Only by vigorously striving for the new," he warns, "can the milling industry hope even to keep abreast of such new and glamorous industries as we find in the chemical and mechanical fields. . . . There should be no feeling that the time has come to coast. The fact that new and better conceptions have not been found does not mean that they cannot be found."

Millers have been heard to indulge in the self-assurance that the strength of their industry lies in its remaining unchanged. Herman Steen, Millers National Federation mentor, warns that this rock of ages quality is just as likely to be the industry's greatest weakness. "Remaining for long periods in a static condition," he says, "has a strong tendency to make a business resist desirable changes, makes it gradually become impervious even to improvement." War accelerates rate of change, and to keep in step the industry must be nimble. But Mr. Steen thinks there will be no disaster in this if there is "the mental elasticity to face each question which arises in terms of the future instead of in terms of the past."

* * *

The note of how much there is yet to do in milling is sounded by others who have contributed to the summing up of what the Association of Operative Millers has done in its first half century. And George S. O. Smith, the association's president, looks for even greater accomplishments in the next 50 years. For the talk of a long road ahead should not be permitted to obscure the broad highway that has brought the organization down to its present point of actual and potential usefulness. Some of the story of the march of progress that has been made over that road is told in this issue of The Northwestern Miller. The pages of Section II are largely devoted to it.

The subject of research in milling, designed to bring the industry closer in step with advancing technology, should not be dismissed without some recognition of the fact that mill management by no means has done its full part in the past to promote technological improvement; and there should be some reference to the program of industry research about to be undertaken by the Millers National Federation. Mill operatives have been too much on their own in the associational program of these past 50 years, and the importance of their work and aspirations merits, as their achievements have earned, more generous support and appreciation in the years ahead.

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EXECUTIVE MANPOWER

NOT much has been said, under the head of postwar planning, about the problem of postwar executive manpower. Primary concern has been for the returning soldier, the relocated workman, and the reconverted or rehabilitated plant. Machinery has been wearing out and its obsolescence has been accelerated under the pressure of wartime usage. While this has been going on, what has happened to management? Perhaps there has been no reason until now to think of this as a vital consideration, but it is easy to make a case for it as a factor in the industrial rebuilding of tomorrow.

Herman Steen, vice president of the Millers National Federation, calls attention to this matter. Apparently milling executives are expendable and are being expended. Mr. Steen startled a regional group of mill executives in Minneapolis last week when he told them that a large proportion of men in the ranks of management are 10 years older today than they were in 1941. He was not concerned about this per se, though doubtless he found it a sorrowful spectacle from the personal point of view. He was considering it as one of the factors governing the flour milling industry's postwar productive capacity.

Mr. Steen's point is that management, particularly in the smaller mills, is worn and weary; that much of it is overdue for retirement, and would have been retired in normal course; that the net effect of this delayed retirement will be withdrawal of capital to conserve investment or reluctance to put new capital into replacement of worn or obsolete equipment.

Mr. Steen's thesis is that there isn't going to be so much excess capacity after the war as to be, necessarily, a fatal element in industry competition; in fact, he says there never has been as much as was popularly supposed. The details of his study are presented in an admirable paper read at the Minneapolis meeting of millers; it is presented in full beginning on page 18a in Section I of this issue.

In a general way and in some of its detailed considerations, this survey aptly complements what is said elsewhere on this page and in the news and feature pages of this issue about the milling establishment's future under the hand of invention and the eye of science.

One last word about the wear and tear upon mills and millers: As long as honor and profit continue to be among the by-products of the grinding of grain there will be enough of both millers and mills. Profit and honor there always have been, with never a lack of either mills or the men to manage them. Better mills there may be, but it is hard to envisage better men. Those who are casualties—old before their time—deserve sympathy, but have not been heard to ask for it. They are, and recognize themselves to be, a part of the expenditure of total war.

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"BEST WHEAT, POOREST BREAD"

CANADA is growing restive over failure of its public officials to get in step with nutritional developments on the flour and bread fronts. An expression of this impatience is to be found in a Winnipeg Free Press editorial appearing under the caption quoted above.

The Free Press is surprised to learn—and supposes that a large part of the public is under a similar misapprehension—that very little "Canada-Approved" flour is being used. It had understood from the tenor of official pronouncements and industrial advertising promotion that millers had been able to process grain so as to retain an adequate quota of the natural vitamins, but now finds that only 7% of the bread used in the Dominion is made from "Canada-Approved" flour and 3% from whole wheat. The rest is white flour of low vitamin content, of the kind to which the public long has been accustomed.

The milling and baking industries in Canada, against the better judgment of the majority, have done their best to make and sell the government-devised product, and now are becoming increasingly insistent upon changing to a program of enrichment by synthetic vitamins. Millers find themselves in the anomalous position of being obliged to fortify flour sold to the British trade but of being forbidden to sell it in the Dominion where it is officially branded as adulterated.

Canadian ★ ★

CONDUCTED BY A. H. BAILEY
Manager Canadian Branch
Lumsden Building Toronto 2, Ontario
Cable Address, "Palmking"

April Flour Output at Near-Record Figures in Canada

Toronto, Ont.—Canadian flour production in April amounted to 2,126,235 bbls, the third highest monthly production during the nine months of the present crop year covered and compares with 1,948,537 bbls in April, 1944. This monthly output was exceeded in November and again in March but in both these months there were 26 working days against 25 working days in April.

Flour production for the nine months totaled 18,620,740 bbls as against 18,714,700 bbls in the same period last year. The quantity of flour exported in April amounted to 1,367,550 bbls, the largest month's exports so far this crop year. Total exports for the nine months were 9,761,267 compared with 9,557,958 in the same period of 1943-44.

Of the total output in April 80,070 bbls were winter wheat flour compared with 16,001 in April last year. This brought the total Ontario winter wheat flour production in the nine months to 831,766 bbls as against 274,891 in the comparable period of preceding year. Last year's production was away below normal because of partial failure of the winter wheat crop. There is an export demand for this flour from the West Indies but restrictions still exist on exports to British markets. The British Ministry of Food confines purchases to Canadian spring wheat flour.

Production of millfeed in April was higher than in the same month last year, amounting to 68,913 tons against 62,987. Millfeed output for the nine months totaled 617,944 tons compared with 611,931 in the same period of previous year. All but about 5% of the total production is consumed in home markets.

——BREAD IS THE STAFF OF LIFE——

CANADIAN WHEAT EXPORTS 6,000,000 BUS LAST WEEK

Winnipeg, Man.—Export business in Canadian wheat last week totaled roughly 6,000,000 bus, including 4,000,000 for the United Kingdom. The remainder was sold to Eire and Portugal and also for relief needs in Europe.

In addition, United States buyers took more than 2,000,000 bus of Canadian oats for deferred shipment from the Canadian lakehead to southern ports. It was believed that the clearances would be made in July.

——BREAD IS THE STAFF OF LIFE——

RAIL SHIPMENTS DECLINE

Toronto, Ont.—Rail shipments of Canadian wheat from lakehead during the first 9 months of the current crop year have declined to 5,700,000 bus from 14,900,000 in 1943-44 the Dominion Bureau of Statistics reports. The rail movement of other grains has also decreased but not to the same extent. This decreased movement reflects the difficult transportation conditions existing last winter as a result of shortages of boxcars and heavy snow. The very early opening of navigation this spring has permitted a heavy movement of grain by boat. By May 7 over 79,000,000 bus of all grains had been moved down the lakes while rail shipments have declined to a trickle. The greater part of total lake shipments has been 47,000,000 bus of wheat consigned mainly to lower lake ports and Buffalo; 19,000,000 bus of oats to Buffalo and lower lake ports and 7,000,000 bus of barley to Duluth, Milwaukee and Buffalo, with about 1,700,000 bus to Canadian lower lake ports.

——BREAD IS THE STAFF OF LIFE——

CANADIAN FEED MIXERS COMPLETE MEETING PLANS

Toronto, Ont.—Final arrangements have been drawn up for the Canadian Feed Manufacturers Association annual meeting to be held in Winnipeg June 25-27, and the agenda gives promise of a convention more instructive, profitable and entertaining than any one yet held. An elaborate three-day program has been planned and many prominent, well informed speakers will be present to address the delegates and lead discussions.

Invitations to attend this first nationwide feed manufacturers' convention have been sent out, and any interested parties who have not as yet expressed their desire to attend are advised to do so at once if they wish to be assured of hotel accommodation. The chairman of convention committee is E. Bole, Canadian Feed Manufacturers National Council, 326 Rue des Meurons, St. Boniface, Man.

——BREAD IS THE STAFF OF LIFE——

IMPROVEMENT PROGRAM

Toronto, Ont.—The Ogilvie Flour Mills Co., Ltd., Montreal, Que., is going ahead with its program of plant improvement as fast as present conditions permit. The new 5,000-bbl mill in Montreal, which has been under construction for some time, may not be ready before early in 1946 due to difficulty in getting necessary material and equipment. The new mill will take the place of an old plant with no increase in capacity. Similarly, construction work in Toronto, where a new warehouse and office building are being erected on Fleet Street, is being handicapped by wartime limitations on construction materials, but it is hoped to complete the Toronto project by this coming fall.

——BREAD IS THE STAFF OF LIFE——

WHEAT STOCKS DECLINE

Winnipeg, Man.—Visible stocks of Canadian wheat in all positions May 25, dropped below the 300,000,000-bu mark for the first time in several months, to 293,773,000 bus, as compared with 303,675,000 bus the week previous, and 283,766,000 bus for the same date a year ago. The total includes only 15,500,000 bus in American ports. Including the above total, there are 73,500,000 bus located east of the Canadian Lakehead ports of Fort William and Port Arthur.

Canada Making Plans to Move Record Volume of Grain for Export

Toronto, Ont.—The Dominion Bureau of Statistics reports that Canadian transportation authorities have been making plans to move out a record volume of Canadian grain for export during the next seven months. It is hoped to place about 250,000,000 bus of wheat in export positions during this period. Canadian wheat is required for liberated Europe whether distributed by the army, UNRRA or purchased by those countries which are handling their own supplies. In order to meet these requirements it is estimated that it will be necessary to move from 28,000,000 to 40,000,000 bus of grain a month through Canadian ports and from 10,000,000 to 12,000,000 bus a month through United States ports.

The magnitude of this task is impressive as clearances through Canadian ports during the eight months from April to November, 1944, averaged 8,900,000 bus and did not exceed 10,800,000 bus during any one month. Clearances of Canadian wheat through American ports averaged 3,800,000 bus for this period and during October reached a high of 6,100,000 bus. During the 1944 season of navigation, however, the United States imported 8,000,000 to 25,000,000 bus of wheat per month and much of the transportation capacity which this movement required will now be available for the movement of wheat to seaboard ports for export. In addition to the clearances of wheat an export movement of flour of between 5,000,000 and 6,000,000 bus per month, wheat equivalent, is expected to continue.

Vancouver Makes Ready

Vancouver, B. C.—Preparations are again under way among the export grain trade here for a large movement of wheat during the summer months. The newest movement reported in grain circles is to India and while definite confirmation has not been given, it is generally understood that this movement is assured now after being mooted some months ago.

The trade understands that some 25 freighters have been secured to come here starting in July to take practically full cargoes of bulk wheat to India. Taking a conservative figure of 8,000 tons of grain per ship, this movement would amount to more than 6,500,000 bus.

The movement is reported to have been arranged by the Imported Cereals Branch of the British Ministry of Food in London.

Exports of Wheat and Flour Drop Below Year Ago

Toronto, Ont.—Canada's exports of wheat and flour during the first nine months of the current crop year ending with April amounted to 201,800,000 bus compared with 255,300,000 in the corresponding period of the preceding year. Flour exports, which were included in these figures, totaled 43,900,000 bus in terms of wheat as against 43,000,000 in the same period last year.

Overseas clearances increased to 118,000,000 bus in the nine months from 85,400,000 in the corresponding months of the crop year 1943-44. Exports to the United States have declined by about 86,000,000 bus so far this season, this reduction being sufficient to account for the decrease in total exports despite the 33,000,000-bu increase in shipments overseas.

On May 1 the supply of Canadian wheat available for export and/or carry-over at the end of the crop year amounted to 428,800,000 bus as compared with 443,500,000 on same date a year ago. Exports fell off substantially during the winter months owing to difficult rail transportation conditions which then existed but the situation now shows considerable improvement.

——BREAD IS THE STAFF OF LIFE——

OATMEAL OUTPUT DROPS

Toronto, Ont.—Production of oatmeal in Canada in April amounted to 1,823,546 lbs as against 4,948,074 in the same month last year, while the output of rolled oats was 16,331,351 lbs compared with 5,074,925. In the nine months of crop year ending with April last oatmeal production totaled 10,523,731 lbs as against 20,200,471 in the corresponding period of previous year. The output of rolled oats in the nine months more than doubled last year's figures, amounting to 160,363,461 lbs compared with 76,341,844. A resumption of export demand accounts for the increased production of rolled oats.

——BREAD IS THE STAFF OF LIFE——

BACHE FIRM TO EXPAND

New York, N. Y.—The partners of J. S. Bache & Co. have announced that, effective June 1, the firm of J. S. Bache & Co. will be known under the new name of Bache & Co. At the same time it was stated that, as of June 1, all interest of the late Jules S. Bache held by his estate will cease, and that Capt. Clifford W. Michel will withdraw as a general partner. Bache & Co., it is proposed, will simultaneously admit seven new general partners and six limited partners. The firm will have a capital in excess of $4,000,000.

——BREAD IS THE STAFF OF LIFE——

MERCK REPRESENTATIVE

Toronto, Ont.—Merck & Co., Ltd., manufacturing chemists, Montreal, has appointed Charles G. Webster traveling representative for eastern Canada.

Operative Millers Celebrate Association's Golden Jubilee

Kansas City, Mo.—With the meeting of District 2, Association of Operative Millers, here, June 9, the association completed its observance of the Golden Jubilee. Officials of the organization originally had planned to mark the occasion with a 50th anniversary convention in Chicago since the first meeting was held in that city. The ODT ban on conventions, however, brought about a cancellation of the convention plans.

Officials asked each district, where possible, to hold a special meeting in June in observance of the anniversary. A series of papers were prepared by men outstanding in their respective fields and these papers were presented as part of the "convention by mail."

The executive committee met here June 8 and in lieu of a national convention, re-elected the association's officers, to hold over until the next convention, at which time delegates to the convention may elect officers. George S. O. Smith, Valier & Spies Milling Co., St. Louis, was re-elected president. Other officers elected included R. R. Brotherton, Bay State Milling Co., Winona, Minn., vice president, and H. H. Trapp, Russell-Miller Milling Co., Minneapolis, Minn., treasurer. W. E. McCraith, executive secretary, was reappointed to that office.

Mr. Smith said that he will announce the appointments to the various committees in the near future. He also said that several new technical committees would be named for the purpose of increasing the scope of the association's activities and expanding the organization's bulletin service to members. These new committees, Mr. Smith said, would be "specialized" committees and questions dealing with technological problems would be referred to the committee appointed. The committee's answers to questions submitted will be published in the bulletin.

District 2 held a special meeting here June 9 at which papers were presented by E. S. Miller, Glenn Pruess, Russell (Kansas) Milling Co., and Frank H. Strickland, Allis-Chalmers Mfg. Co. Following the afternoon meeting, the members of district 2 and their wives attended a dinner. The allied trades representatives in the district entertained the guests with a quiz program during which 150 silver dollars were distributed to various prize-winners. Oscar Cook, Standard Milling Co., Kansas City, was the quiz-master.

Harry A. Bullis, president of General Mills, Inc., is the author of one of the leading papers presented in the association's convention by mail. Mr. Bullis, in his paper, discussed the problems that faced the milling industry and cited many of the responsibilities of operative millers.

"One of the greatest problems confronting the milling industry today, and probably the one which is of the most immediate importance, is that of expense," Mr. Bullis stated. Much of the added expense of production has been inevitable during the war emergency, he said, adding that "present conditions will not continue indefinitely and the higher the costs of production become, the less favorable will be the position of our principal product, flour, in competition with other foods.

"We cannot expect to reduce costs by cutting wage rates. Even in the postwar period, wage rates will probably remain high, though some cost reduction may come from the discontinuance of overtime. Other ways will have to be found to reduce costs of production. That is one of the problems which you operative millers will help to solve," he said.

Need for Research

Mr. Bullis stressed the need for more technological research when he declared in his paper:

"The end of the war will bring to our attention many technological innovations, some of which undoubtedly will be adaptable to flour production. There have been advancements in flour mill technology during the past years, but they have been largely improvements in methods and machines rather than basic innovations in the concept of the reduction of wheat to flour. The fact that new and better conceptions have not yet been found does not mean that they cannot be found."

Carlton D. McKenzie, president of the Millers National Federation, in a paper prepared for the association, discussed the relationship between operative millers and executives in the milling industry. He also discussed the creation of the technical service department of the federation and invited the co-operation of the millers in that department.

The operative millers were asked by Mr. McKenzie to become familiar with the reciprocal trade agreements and the restoration of international trade. "Each miller has a real postwar stake in this proposition whether or not he is connected with a mill that has exported flour. I would urge careful study of these agreements as they are developing in the near future, and I am sure that the results will be worth the effort," he said.

The Production Section

The Milling Production Section of this issue of The Northwestern Miller has been enlarged with the addition of several articles and the cover commemorates the 50th anniversary of the operative millers association. The lead article, "Looking Back Over Fifty Years," was prepared especially for this journal by Prof. B. W. Dedrick, founder and first president of the association. Mr. Dedrick, in his reminiscences, recalls many interesting events during his 50 years of constant association with the organization.

George S. O. Smith, president of the association, also contributed a

MILLERS' LUNCHEON—District 4, Association of Operative Millers, held a special meeting, in Minneapolis, June 2, in observance of the Golden Jubilee of the association. The pictures above, taken by this journal's cameraman, show some of the millers and allied trades representatives at the luncheon. Thomas G. Cecka, International Milling Co., Minneapolis, is shown in the upper left picture with his son James, a lieutenant in the U. S. Army, recently returned from the European theater of operations. The men in the upper right picture also are associated with the International Milling Co. They are E. S. Gilbert and J. P. Lindberg of the Wabasha, Minn., plant. C. R. Veeck, Eagle Roller Mill Co., New Ulm, Minn., and W. S. Sewell, Strong-Scott Mfg. Co., Minneapolis, are shown in the left center picture. The men in the right center picture are O. J. Olson, Redfield (S. D.) Co-operative Mills, and G. L. Tooker, Commander-Larabee Milling Co., Minneapolis. The two cigar smokers in the lower left picture are Howard C. Jacobson, president of the Jacobson Machine Works, Minneapolis, and Roy E. Gorgen of the Day Co., Minneapolis. V. H. Reid, Hart-Carter Co., Minneapolis, and Walter Tarling, Minneapolis, are the men in the lower right picture.

DONUT WEEK SET FOR MARCH, 1946

The week of March 24-30, 1946, has been designated for the observance of the ninth annual National Donut Week, it was announced recently by Bert Nevins, director of National Donut Week Committee, with headquarters at 152 West 42nd Street, New York. Among the sponsors of the week, which has been one of the outstanding promotions in the food industry, are many food ingredient and food machinery companies, various bakery associations and publications.

short message for use in the Milling Production Section. Both articles appear on page 3a of Section II.

Prof. R. O. Pence, milling technologist, Kansas State College, and chairman of the association's research committee, is the author of another special article for the anniversary issue of Section II. Mr. Pence's article is entitled "Milling Research," and in it he expresses the satisfaction of the association to the Millers National Federation upon its creation of a technical service department. Mr. Pence suggests many research projects that might be undertaken and reviews some projects which were undertaken by the Association of Operative Millers.

Alcohol From Grain

"Production of Alcohol from Grain" is the title of another special article by L. A. Underkofler, chief chemist, Farm Crops Processing Corp., Omaha. Mr. Underkofler's discussion is nontechnical and he expressed the opinion that grains will continue to be the basic raw material for many industrial products in the postwar period.

W. E. McCraith, executive secretary of the operative millers association, is the author of an article, "Past, Present and Future of the Association of Operative Millers." Mr. McCraith states that the association is "recognized as one of the few and one of the oldest technical organizations in existence," and that its members are "proud of the fact that we have served the milling industry so faithfully in our capacity, knowing full well our efforts and co-operation in the milling field have been appreciated."

A. H. Rousseau, head miller, Fisher Flouring Mills Co., Seattle, Wash., is the author of another anniversary article prepared for this journal. In his article Mr. Rousseau describes the adaptation of many new industrial devises to the particular use of flour mills.

Flour Mill Capacity

(Continued from page 18b.)

quired to reduce this excess than was necessary during the decade of the thirties. Prospects for the future do not therefore have to be veiled in deep blue pessimism. Indeed, the miller who is equipped properly to face the future does not need to be pessimistic at all—and by being equipped properly, I mean that his company must be manned well in all strategic spots, and its plants must be efficient and its trade connections maintained, that its financial condition be sound, and above all that its officers must be elastic enough mentally to face conditions as they are and not spend too much time wishing that the good old days of William McKinley were back again. A company does not have to be big to possess all these qualities in sufficient amount, and there is no compelling reason why an alert small or medium sized company cannot operate successfully under future conditions as these companies have in the past.

Ever since I have been with the federation, I have heard millers say that the strength of this industry is that it remains the same year after year. That may be true, but is it not also a fact that this is actually its greatest weakness? Remaining for long periods in a static condition has a strong tendency to make a business resist desirable changes, makes it gradually become impervious even to improvement. To some extent at least—and I've heard a few millers say to far too great an extent—the milling industry has not progressed with the times the past quarter of a century or so. An industry as static as ours has been in the period since the first World War usually moves too slowly in adapting itself to changes that are inevitable. War, and especially one as great as the conflict now moving toward an end, speeds up tenfold the normal processes of change, and we may well find that in the next five years even our slow moving industry may be obliged to absorb the effects of changes that would otherwise require close to a half-century to produce. If that proves to be the case, it may be no disaster—in fact, it will be no disaster at all if the leaders of this industry have the mental elasticity to face each question which arises in terms of the future instead of terms of the past. Let us, as far as we can, be the master and not the servant of these changes which are ahead.

——BREAD IS THE STAFF OF LIFE——

J. J. PADDEN, PIONEER DURUM MILLER, IS DEAD

J. J. Padden, president and manager of the Crookston (Minn.) Milling Co., died June 5, after a lingering illness. He was stricken with a heart attack three years ago, and had been confined to his home most of the time since then. Mr. Padden, who was in his late sixties, had a host of friends in and out of the milling trade and, for years, he was a prominent figure at macaroni conventions, being one of the pioneer durum millers. He is survived by his widow, three daughters and a son. Burial was at Crookston, June 8.

Need for Sanitation in Flour Mills Emphasized by Food and Drug Agent

St. Louis, Mo.—Operative millers have an obligation to their organizations and to the consuming public to see that they furnish clean food, Roy S. Pruitt, chief of the St. Louis section, Federal Food and Drug Administration, told the anniversary meeting of District 5, held in St. Louis, June 2, at the York Hotel. Mr. Pruitt discussed the application of the United States Food, Drug and Cosmetic Act as it applies to flour and cereals produced for food. Other speakers on the program were Dr. C. A. Lamb, federal soft wheat laboratory, Wooster, Ohio, and Louis R. Henkle, Greensburg, Ind.

Their discussions followed an elaborate luncheon served in honor of the 50th anniversary of the Association of Operative Millers. An enormous triple layered anniversary cake which was cut by Jacob Rabold and Edward Sherman furnished the dessert at the meal. The ladies were invited to the celebration, and each was presented with a rose from the bouquets placed about the room. George S. O. Smith, national president of the association, greeted the members and told of some of the difficulties that were overcome in making the District 5 party so successful.

Mr. Pruitt, in his discussion of the application of the pure food and drug act said, "Millers have a big problem to face in making sure that none of the flour manufactured is produced under insanitary conditions." Although pointing out that there are severe penalties for those millers who do not see that their mills are kept clean, he emphasized that the law is not intended to be either a barrier or a trap. "On the contrary," he said, "it has a very definite purpose." He then illustrated his point by reading the case history of a flour mill which flagrantly violated the pure food and drug act.

Floors and walls of the mill were covered with debris and webbing, Mr. Pruitt said. There were no dust collectors, and open spouting was present. The grain was heavily infested with moths, weevils and cadelles. Many of the planks were bored clear through by the cadelles, and the break and reduction roll stands were infested with larva and adult beetles. In all of the flour inspected, live insects, not dead ones, were found. Mr. Pruitt said that obviously flour manufactured under these conditions is an adulterated product, and thus a clear violation of the food regulations.

He said that the authorities can take action through the courts. They may order seizure of the adulterated flour, and an injunction to keep the flour from being shipped in interstate commerce, and prosecution.

Mr. Pruitt stated that the government representatives have no desire to get millers in trouble. He advised the operative millers to get their mills cleaned up before the inspectors arrive.

Mr. Pruitt turned the rest of his discussion into a sort of an open forum. He was asked whose responsibility it is if the weevil found in the flour comes out of the railroad car. He answered that the inspectors are interested in the product itself. He said that action would be taken against the finished food product.

One member, objecting that it was difficult to keep mills clean where there are hollow walls, said that it was nearly impossible to keep insects out. Mr. Pruitt declared, however, that hollow walls may make breeding places for flour insects. "I have seen mills with hollow walls which were totally free from insect infestation," he said. Answering the question as to where investigations start—in the product, or in the mill—he said that it works both ways. George S. O. Smith pointed out that very often not the manager but the sweeper is at fault when the floor is not clean. Mr. Pruitt, answering this charge, said that a manager need not hire these sweepers if they are incompetent, and therefore it is the manager's responsibility to see that the mill is always kept clean.

"How to clean mills such as the one described is the problem," Mr. Pruitt admitted. "But there is a solution," he emphasized, "for some mills have done it." He declared, however, that too many industries spend millions of dollars trying to make a good product out of a bad situation, instead of trying to correct the situation itself. This axiom applies to the milling industry, he said, because too often great sums of money are spent in trying to kill the insects in the flour, instead of killing the insects before they get into the flour.

——BREAD IS THE STAFF OF LIFE——

Predicts Early End Of Relief Flour Buying Program

Minneapolis, Minn. — The present large flour buying program being conducted by federal government agencies will taper off within the coming three or four months, Philip W. Pillsbury, president of Pillsbury Mills, Inc., predicted in an address before members of District 4, Association of Operative Millers, held here June 2. Mr. Pillsbury's address, "A Washington Report on the Milling Industry," was the feature of a luncheon meeting of the organization.

He based his prediction upon the belief that the Combined Food Board will become progressively more strict with regard to lend-lease and other food shipments to Europe. "The liberated and conquered countries in Europe are going to continue to take all that they can get from the United States for nothing as long as we are willing to send it to them," Mr. Pillsbury declared.

The appointment of Clinton P. Anderson as secretary of agriculture and head of the War Food Administration, Mr. Pillsbury said, was a "great move" by President Truman. He said that Mr. Anderson, through his experience as chairman of the House investigating committee, has a complete understanding of the problems connected with food supply and demand.

In discussing prospects for the milling industry in the immediate future, Mr. Pillsbury said that he believed the present milling year will be a good year for the industry. He cautioned, however, that the present government flour program appears to be short-lived and urged that millers lay plans now for resuming production of the type of flour exported to Europe before the war.

The demand for low grade flour and millfeed, Mr. Pillsbury believes, will be sufficient to hold feed prices at the ceiling level for some time. He cited the increase in livestock and poultry numbers as the basis for his belief that feed prices would remain firm.

With reference to running time for flour mills, the flour milling executive predicted that a shortage of boxcars would be the determining factor. With the shift of the war to the Pacific, much longer hauls of war equipment from eastern industrial centers to west coast ports will be necessary, he explained.

Centennial Flouring Mills Co.

NEW SPOKANE MILL . . . MOST MODERN IN THE WORLD

GENERAL OFFICES: 814 SECOND AVENUE BUILDING
SEATTLE, WASHINGTON

DOMESTIC and EXPORT MILLERS

6,000,000 BUSHELS
COUNTRY AND TERMINAL STORAGE

GOLD DROP *PIE and COOKIE FLOUR*
PYRAMID *CONE FLOUR*
CENTENNIAL *CAKE FLOUR*

DEALERS IN
ALL TYPES OF PACIFIC NORTHWEST WHEAT

MILLS AT TACOMA • SPOKANE • WENATCHEE • RITZVILLE • PORTLAND

PRESTON-SHAFFER MILLING CO.
MERCHANT MILLERS
ESTABLISHED 1865

SOFT WHITE WINTER WHEAT FLOUR A SPECIALTY

Also Choice Blue-Stem and Hard Spring Patents

WE INVITE EXPORT CORRESPONDENCE

General Offices: WALLA WALLA, WASHINGTON
Mills at Waitsburg, Washington, Freewater, Oregon, and Athena, Oregon—Daily Capacity, 6,000 Cwts.
Atlantic Coast Office, RAYMOND F. KILTHAU, Produce Exchange, New York.

SPRING WHEAT FLOURS

RED WING SPECIAL
BIXOTA
CREAM *of* WEST
PRODUCE BREADS WITH TASTE APPEAL

THE RED WING MILLING CO.
RED WING, MINNESOTA

Wheat Washed with Our Own Artesian Well Water.
Flour Tested and Baked in Our Own Laboratory.

AMES HARRIS NEVILLE CO.
PORTLAND, ORE. SAN FRANCISCO, CAL.
BURLAP AND COTTON BAGS AND SEWING TWINE

CROWN MILLS
PORTLAND, OREGON

"THE FLOUR SUPREME"

Millers of High Grade Bakers, Family and Export Flours.

WESTERN MILLING CO.
MONTANA SPRING WHEAT PATENT
BLUESTEM—PATENT
FINEST SOFT WINTER WHEAT PATENT
General Offices: Walla Walla, Washington Mill at Pendleton, Oregon

---

SPOKANE FLOUR MILLS CO.
SPOKANE, WASHINGTON
Specializing in Soft Wheat Pastry and Cake Flours

Fisher's FOR UNIFORM FLOURS

The largest and most modern flour mill and elevators on the Pacific Coast with storage capacity at our mills of 2,500,000 bushels, together with more than one hundred elevators and warehouses in the choicest milling wheat sections of Montana, Idaho and Washington, insure the uniformity of all Fisher's Flours.

FISHER FLOURING MILLS CO., SEATTLE, U.S.A. Domestic and Export Millers
CLIFF H. MORRIS & CO., Eastern Representative, 25 Beaver Street, New York City

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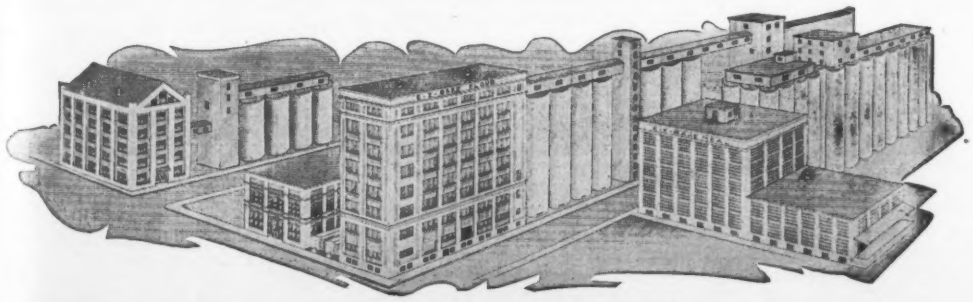
LIBERTY FLOUR
GEORGE URBAN MILLING CO., Buffalo, N. Y.



Over a Century of Milling Progress Since 1821

ACME-EVANS COMPANY
INDIANAPOLIS, IND.

Cable Address: "ACME," Indianapolis

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

MILLING UNDER LICENSE. — If you were a miller in World War I you operated under a license. How would you like to go back to that? The first license proclamation of the President was issued Aug. 14, 1917. Under it all millers of wheat and rye, and elevators handling and storing the same commodities, were required to operate under federal license after Sept. 1. Exception was made for millers with an operating capacity of less than 100 bbls daily, and for farmers' co-operative associations (co-ops, you see have been teacher's pet for a long time).

It was thought at first that it would not be necessary to place distributors of groceries generally under license, but as the problem was studied more minutely, it was found that the provisions of the Food Control Act and the penalties for its violation were not sufficiently definite to afford adequate control except under a licensing system, which it was felt should be applied only to the right of the dealer to handle some of the more important staple commodities rather than to the right to deal in foods generally. Accordingly a proclamation was issued requiring that a license should be obtained by all importers, manufacturers and distributors of a long list of staple foods, including most flour and cereal products.

Exception was made for retailers whose gross sales of food commodities did not exceed $100,000 per annum, as these were exempt from license under the law. Exemption was also made for farmers.

● **Milling rules** which became effective Dec. 25, 1917, provided a minimum milling extraction of not less than 196 lbs of flour from 264 lbs of wheat weighing 58 lbs per bushel, and prohibited the removal of more than 5% of the flour so manufactured. Patents were out entirely by March, 1918, at which time millers were limited to 70% of the wheat used in 1917. Differentials were established for a maximum extraction on lower grades of wheat. The miller was required to fix his basic price for flour each day, and was not permitted to vary that price more than 25c bbl between customers, freight and quantities sold taken into consideration. All invoices were required to show the bulk mill price.

Flour package differentials were established at this time on the basis of flour in 98-lb cotton or jute bags. This was the beginning of a trade practice, under government sponsorship, that was to be attacked in court, a quarter of a century later, as discrimination in restraint of trade.

● **Fixed Flour Prices.**—On the crop of 1917, flour millers were allowed a net profit of 25c bbl. As the cost of milling varied in different mills, it was impossible to secure in this way a perfect stabilization in flour prices.

"Many of the mills," comments Albert N. Merritt in his book on food control in World War I, "desired to play safe and charged enough for their flour so that there would be no chance of their total profits for the year falling below the amount allowed. As a result some of the larger mills, toward the close of the season, found it necessary to reduce their flour prices far below the cost of production, and a few favored dealers were thus enabled to obtain flour at $3 or $4 per bbl less than the prevailing market price. The Food Administration undertook to trace sales of flour at these exceptionally low figures to see that the consumer got the benefit of these prices. This method, however, proved so unsatisfactory that the Food Administration advised the mills that if they had any more flour to sell at below cost prices, they should sell it to the government. Another serious objection to this method of regulating flour prices was that it offered great temptations to the miller to pad his expense accounts, to increase salaries of officials, and to charge expense of operation improvements which should have been charged to capital account, and a number of millers who were unable to resist the opportunity of extra profits which such methods afforded lost their license."

A new basis was adopted for the 1918 crop. The miller was allowed a gross profit of $1.10 bbl to cover his entire expenses of operation and manufacturing costs. The basic price was arrived at as follows: The price of wheat mill door was multiplied by 4.4 to give the value of the wheat content of a barrel of flour. From this amount was deducted the value of 68 lbs of millfeed which was taken out of the wheat in the course of manufacture. To the price so obtained was added a maximum of $1.10 which represented the miller's gross profit. This was the basic price or maximum which he might charge for the sale of flour in car lots f.o.b. mill. A differential of 25c bbl was allowed for sales of flour to wholesale dealers in carload lots, payment on arrival, and of 35c bbl for flour sold in less than carload lots, payment on arrival. In sales to retailers mills might charge 50c bbl additional over basis as a distributor's profit.

An additional charge for credit and delivery service was allowed on sales to dealers which, however, could not exceed the actual cost of the service performed, and in no event could it exceed 25c bbl. In sales to consumers the mills were permitted to add a distributive charge of not to exceed $1.20 bbl. In addition to this margin the miller was permitted to add the actual cost of the containers used, and all freight charges where goods were sold delivered.

● **Millfeeds,** exceedingly scarce throughout the war, were put on a fixed price base almost as soon as the original flour regulations were adopted. This basic price brought them into direct relation to the price of wheat, and as the wheat price had been stabilized, the stabilization of the price of millfeeds naturally followed. However, as conditions changed it was frequently necessary to change the basis of the price of the different feeds among themselves, as well as the basic price of feeds in relation to wheat. As finally effective for the 1918 crop the basic price of mixed millfeeds, containing all the wheat kernel not made into flour, f.o.b. mill, was fixed at one third the cost of an equal weight of wheat. Shorts, middlings and red dog might be sold at 75c ton over the basis so established, and bran could be sold at not more than $1.25 ton under this basis.

The following additional margins were permitted: sales of millfeeds of less than one carload, but more than one ton, to wholesalers $1 ton, to retailers $2 ton; sales of less than one ton lots to any dealer $3 ton. The margin of millers on sales to consumers was based on the action of the zone agents of the Food Administration, and mills in each zone were instructed as to the maximum which would be allowed in their particular locality. In addition to the specific margins the mill might add the actual interest on credit accounts and the actual cost of cartage when goods were sold delivered.

● ● ●

Verdict of Washington, so far, Herman Fakler told millers at their recent regional meeting in Minneapolis, is that Clinton Anderson is okay for the job of secretary of agriculture. He's no New Dealer. It seems likely that under his aegis there'll be less agricultural confusion in the capital and more agricultural progress and benefit where the farming business actually goes on.

● ● ●

. . . THE FOUR MOSTS.—The map of the United States is split up into four parts for the purpose of coverage by the field staff of home economists in the Wheat Flour Institute. The New England section, in charge of Miss Pauline Girard, has the most population. The southeast and south, covered by Miss See Rice, makes the most home-baked bread. The north central area, over which Miss Alma Swenson has been presiding, has in it the most home economists (in fact, this is America's most prolific hatchery of home ec experts, with Iowa State College the chief incubator). And in the Pacific area Mrs. Jeannette Hendricks reigns over the most acreage. These ladies, to cap the record of superlatives, do a most capable job.

● ● ●

DE GUSTIBUS NON DISPUTANDUM.—There is no arguing about taste—you either like a thing or you don't. Something was said to this effect lately in this journal's editorial comment on the current attack of Reader's Digest upon commercial bakers and their product. Advertising Age chimes in to the same effect, with an instructive example of how mixed up the situation is—an example that could be plentifully repeated and multiplied. "Many a farm boy who gets nothing but home made bread most of the time," says the Age, "looks on baker's bread as a delightful change. In other words, regardless of what may be said in favor of the home baked loaf as compared with the commercial product, many an appetite demands a change."

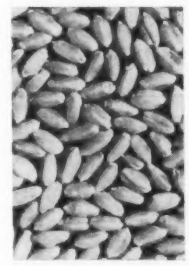
Advertising Age's own specialized slant on the subject comes out in this:

"The article which has caused so much bad feeling in the baking industry, which incidentally sells about $2,000,000,000 worth of its products to the American consumer every year, the bulk of it the much abused loaf of bread, says that the reason so much of it is consumed is that through advertising the big bakers have virtually forced an unappetizing product down the throats of the people. This is ascribing a greater power to advertising than it actually possesses. If commercially baked bread were that bad, housewives would have long ago gone back to their weekly chores."

THIS WEEK'S COVERS

Pictured here, you may assume, is a weevil's-eye view of the wheat berry. Persons who completed the short course in wheat variety identification that was held at Kansas State College recently probably would take a somewhat different view of it. In any case they would be able to perform varietal identification.

For those not so skilled in recognizing varieties, we may say that the wheat in the picture is from a prize-winning sample of Tenmarq, a hard red winter type. Spring wheat millers might possibly argue that the wheat is Marquis. They would be, in effect, one half correct, for the Tenmarq variety is the result of a cross between Selection No. 1066 of a strain of Turkey winter wheat and Marquis spring wheat. The kernels exhibit all of the physical characteristics of Marquis.



The photograph was made by Paul L. Dittemore, this journal's technical editor, who is no mean candid cameraman, as many members of the trade know—though in some cases one of our adjectives might be wrong in one of its definitions.

The cover of Section II of this issue commemorates the Golden Jubilee of the Association of Operative Millers which is being celebrated this month by the various district organizations of the association. The old mill pictured is at Sudberry, Mass., and the photograph used for the illustration was obtained from the Pillsbury Institute of Flour Milling History. It was entered in a photographic contest for old mill pictures and was taken by C. L. Bruce, of Sioux Lookout, Ont. The modern mill pictured, to symbolize the development, during the past 50 years, of the milling industry, is the Grand Island, Neb., plant of the Nebraska Consolidated Mills Co.

Milling Wheat

From the rich fields of Nebraska

Selected for millers who make good flour

BUTLER-WELSH GRAIN CO.

OMAHA, NEBR.

Storage, 2,500,000 Bu. Phone ATlantic 2900

"KELLY'S FAMOUS" FLOUR

IS . . .

KANSAS' FAMOUS FLOUR

★ ★ ★ ★ ★ ★

THE WM. KELLY MILLING CO.

Capacity 2,500 Barrels HUTCHINSON, KANSAS

Cable Address "RAYBAR"

TIDEWATER GRAIN COMPANY

Receivers - Shippers - Exporters
Export and Domestic Forwarders

Members all leading Exchanges
Established 1927

Bourse Building PHILADELPHIA 6, PA. Chamber of Commerce BALTIMORE 2, MD.

Evans Milling Co.

INDIANAPOLIS, IND., U. S. A

Manufacture Kiln-Dried WHITE CORN PRODUCTS

Capacity, 16,000 Bushels

WHITE WHEAT

Low Protein Cake and Cookie Flours

AMENDT MILLING CO.

Monroe, Mich.

Chickasha Milling Co.

Capacity 800 bbls CHICKASHA OKLA. Cable Address "Washita"

Manufacturers of High-Grade Hard Wheat Flour
Foreign and Domestic Trade Solicited
Member Millers' National Federation

BLAIR'S Certified FLOUR FEEDS

BLAIR MILLING CO., Atchison, Kans.

UNIFORM QUALITY FLOURS

PLAIN AND SELF-RISING

Low cost laboratory controlled mill grinding all types of wheat

Pancake Flour—Cake Flour—Farina—Whole Wheat Products—Prepared Biscuit Flour

CHELSEA MILLING CO., Chelsea, Mich.

KING MIDAS FLOUR

KING MIDAS FLOUR MILLS

Minneapolis, U. S. A.

"Sasnak Flour"

For Discriminating Eastern Buyers

ENNS MILLING CO., Inman, Kan.

King Milling Company

High Grade Michigan Soft Wheat Flour, Plain and Self-Rising

Successful Millers for Fifty Years

LOWELL, MICHIGAN

MILLS STRATEGICALLY LOCATED IN THE CENTRAL WEST AND ON THE PACIFIC COAST . . .

CRACKER-PASTRY-CAKE DOUGHNUT-CONE-COOKIE AND ALL OTHER SPECIAL FLOURS

IGLEHEART BROTHERS

INCORPORATED

EVANSVILLE, INDIANA

A 1945

LIST of FLOUR MILLS

IN THE UNITED STATES AND CANADA

IS AVAILABLE!

Subscribers to THE NORTHWESTERN MILLER are mailed a copy of this new list on request, without charge.

Use the attached subscription order blank to get the new list, and to receive THE NORTHWESTERN MILLER weekly, if you are not now a subscriber:

THE NORTHWESTERN MILLER,
Subscription Department,
118 South Sixth Street, Minneapolis 2, Minn.

Please enter my subscription to THE NORTHWESTERN MILLER and mail me a copy of the 1945 List of Flour Mills.

Name .....

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SUBSCRIPTION RATES
Including List of Mills

One Year .....$2.00 Three Years $5.00

"SUPERFLOUR"

"BUFFALO"

Tops in Bakery Flours

★ ★

THE WILLIS NORTON CO.

Quality Millers Since 1879

Capacity 1,500 Bbls. WICHITA, KANSAS

Keeping Up With Commodity Regulations

IT takes a specialist with thorough-going knowledge of commodity markets, *and* the various Washington agencies whose programs so greatly affect those markets, to keep up with current fast-changing developments.

We have a resident Washington representative who can and does give our clients a quick report on new rulings *when they occur,* and integrates the reports with keenly alert brief studies and interpretations of how commodity markets are being affected.

These on-the-spot, up-to-the-minute surveys are available to you. With rapidly changing national commodity trends so important at this moment, we suggest you ask our Commodity Department *now* to place its facilities at your service.

MERRILL LYNCH, PIERCE, FENNER & BEANE

Brokers in Commodities and Securities
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70 PINE STREET NEW YORK 5, N. Y.

Offices in 87 Cities

MIDWEST RESEARCH STAFF DISCUSSES MILL PROJECTS

Kansas City, Mo.—A close working relationship between the members of the Kansas City Section, American Association of Cereal Chemists, and the staff of the Midwest Research Institute started at the chemists' meeting held the evening of June 6 when members of the research organization staff discussed in round table fashion some of the problems they have attacked in the past few months.

Dr. C. L. Shrewsbury gave each of the men on his staff at the Midwest laboratories five minutes to talk about progress made in variety identification of wheat, vitamins, insect control and wet process milling. Although some of the discussions were elementary to many of the chemists, it was apparent that the institute is starting on many projects that are close to the flour milling industry.

W. R. Green, Continental Baking Co., was reappointed chairman of the research committee to study color of bread. This study is a continuation of the study of the color of flour.

Ernest Tibbling, General Mills, Inc., reported that in his studies of Pawnee, Wichita and Comanche, three newly developed hard red winter wheat varieties, all have good baking characteristics, with the first two named varieties possessing shorter and more desirable mixing times.

F. O. Zimmerman, of the Federal Telephone and Radio Corp., told about experiments in heating wheat electronically, and although the costs now are high, he said that the process may some day be applied to the milling business.

O. E. Gookins, Quaker Oats Co., showed the chemists a loaf of German black bread brought back from a prison camp. It was about the size of a building brick and nearly as tough.

The next meeting of the Kansas City section will be held July 11.

——BREAD IS THE STAFF OF LIFE——

JOHN D. KELLY RESIGNS

Minneapolis, Minn.—John D. Kelly, who has been associated for about 30 years with Pillsbury Mills, Inc., Minneapolis, in the sales department, has resigned, effective May 31. His future plans have not been announced. Mr. Kelly recently has been in the sales department of the company at Minneapolis. Before that, he was for a number of years manager of the firm's Milwaukee branch.

——BREAD IS THE STAFF OF LIFE——

Millfeed Receipts and Shipments

Receipts and shipments of millfeed at the principal distributing centers for the week ending June 9, in tons, with comparisons:

	Receipts 1945	Receipts 1944	Shipments 1945	Shipments 1944
Minneapolis	...	...	19,710	21,780
Kansas City	550	175	5,750	2,525
Philadelphia	80	160	...	...
Milwaukee	...	30	5,070	3,930

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading markets, in cents per bushel:

WHEAT

	Minneapolis July	Minneapolis Sept.	Chicago July	Chicago Sept.	Kansas City July	Kansas City Sept.	Seattle July	Seattle Sept.	Duluth July	Duluth Sept.
June 5	165½	161½	167⅛	164¾	158¼	157¾	....	....	173	....
June 6	165½	160⅝	*166½	163⅞	157¾	157¼	....	....	173	....
June 7	165½	160¼	166⅞	163⅜	157⅞	156⅝	....	....	173	....
June 8	167½	161¼	167⅛	164¼	158¾	157⅜	....	....	173	....
June 9	168	161⅜	167⅞	163¾	158⅜	157⅛	....	....	173	....
June 11	167⅜	160⅜	167⅞	163¼	158½	156½	....	....	173	....

	CORN Minneapolis July	CORN Minneapolis Sept.	CORN Chicago July	CORN Chicago Sept.	CORN Kansas City July	CORN Kansas City Sept.	OATS Chicago July	OATS Chicago Sept.	OATS Minneapolis July	OATS Minneapolis Sept.
June 5	....	....	118½	118½	....	....	64¼	63¼	60⅝	59⅝
June 6	....	....	118½	118⅛	....	....	*64⅛	63⅛	61⅛	59⅜
June 7	....	....	118½	118⅛	....	....	64⅝	63⅜	61¼	59½
June 8	....	....	118½	118¼	....	....	65¼	64	63¼	60½
June 9	....	....	118½	117⅞	....	....	65¾	64⅝	64	60½
June 11	....	....	118½	118½	....	....	65⅞	64½	63¼	60⅜

	RYE Chicago July	RYE Chicago Sept.	RYE Minneapolis July	RYE Minneapolis Sept.	FLAXSEED Minneapolis July	FLAXSEED Minneapolis Sept.	FLAXSEED Duluth July	FLAXSEED Duluth Sept.	BARLEY Minneapolis July	BARLEY Minneapolis Sept.
June 5	141½	134½	135¾	130⅛	....	310	310	....	....	....
June 6	*141⅛	133¾	135⅜	129¾	....	310	310	....	....	....
June 7	142⅛	134¼	136⅛	130	....	310	310	....	....	....
June 8	143¼	134⅝	137⅝	131¼	....	310	310	....	....	....
June 9	142⅜	135½	137⅝	131⅞	....	310	310	....	....	....
June 11	142⅜	135⅛	136⅞	130⅞	....	310	310	....	....	....

*Clearing price on split close.

Milling

WHEAT, RYE, CORN and OATS
FEED WHEAT and FEED BARLEY
Any Grade—Any Quantity
Any Time

BUNGE ELEVATOR CORPORATION
280 NEW CHAMBER OF COMMERCE BUILDING
MINNEAPOLIS, MINNESOTA

"DURAMBER"
SEMOLINA
FANCY No. 1
Milled from Carefully Selected
AMBER DURUM WHEAT
AMBER MILLING CO.
MINNEAPOLIS
Cable Address: "AMBERMILCO"

IT'S BIN AGED
Flour from this mill comes to you fully aged — ready to use
ATKINSON MILLING CO.
MINNEAPOLIS, MINNESOTA

TRIPLE XXX FINE GROUND
ALFALFA MEAL
Ideal for Poultry Mashes
THE DENVER ALFALFA MILLING & PRODUCTS CO. Lamar, Colo. Merchants Exchange, St. Louis, Mo.

"RUSSELL'S BEST"
"AMERICAN SPECIAL"
Our mill is located in the high protein wheat district of central western Kansas, and secures most of its wheat directly from growers.
RUSSELL MILLING CO., Russell, Kansas

THE WALNUT CREEK MILLING CO.
Millers of Fine, Country-Milled Kansas Wheat Flours
Since 1877
GREAT BEND, KANSAS

Van Dusen Harrington Co.
• *Grain Merchants* •
BUSINESS FOUNDED 1852
MINNEAPOLIS DULUTH

IF YOU NEED
CHEMICAL ANALYSES ★ TEST BAKES
PRODUCT RESEARCH ★ VITAMIN ASSAYS
LABORATORY AND RESEARCH DIVISION
THE W. E. LONG COMPANY
155 N. Clark Street Chicago 3, Illinois

Uhlmann Grain Co.

Kansas City, Missouri

To the Grain Men and Millers

Gentlemen:

You are cordially invited to attend a discussion and examination of the Demonstration Wheat Plot on my farm, outside of Overland Park, Kansas, 103rd and Antioch Road, on Saturday, June 16.

This wheat plot is under the supervision of the Kansas Wheat Improvement Association and the Missouri-Kansas Border Soft Wheat Improvement Program, headed by Dr. John H. Parker of Manhattan, Kansas, and Mr. Jess B. Smith of Kansas City. For the last five years there have been about thirty such plots each year in Kansas, on which a good many varieties of wheat have been tested and demonstrated in the interest of Kansas wheat crop improvement.

We are especially fortunate in having as speakers on our program the following leaders:

MR. E. J. MURPHY, Chief,
Grain Products Branch,
Office of Marketing Services,
War Food Administration,
Washington, D. C.

MR. LEE MARSHALL, Chairman,
Continental Baking Company,
New York, N. Y.

MR. HARVEY J. OWENS, Consultant
to the Commanding General,
Quartermaster Depot,
Chicago, Ill.

The program will begin at 2:30 P. M.,—a Barbecue dinner will be served at 5:00 o'clock.

Hoping you can come to enjoy the program and greet our out-of-town speakers, I remain

Sincerely,

Paul Uhlmann.

P. S.—In driving to the farm, suggest you use Highway No. 69, south to Indian Creek Bridge, turn right (west) at the end of the bridge on 103rd Street, drive a mile west to the farm, which is at the first crossroad, located on the southwest corner. There will be a sign on Highway No. 69 and 103rd Street, and also at the farm itself.

MOSTLY PERSONAL

A luncheon was given in the Produce Exchange Luncheon Club on June 8, to honor **James J. Moran,** who has been grocery products sales manager in New York for General Mills, Inc., but who is leaving to become manager of the grocery products operations for the eastern division at Buffalo. In addition to Mr. Moran, it was attended by the other executives at the New York offices.

●

John H. Blake, New York flour broker, is proud of the 7-lb granddaughter, **Miss Gail C. Norris,** born to his daughter, **Mrs. William Norris, Jr.,** whose husband is stationed at Wright Field, Dayton. Mr. Blake is now on a business trip to Kansas City after which he will proceed to Lake City, Minn., to visit Tennant & Hoyt, his mill connection there.

●

With appropriate ceremonies celebrating 50 years with the New York Produce Exchange, **Gus Gatzke,** chief elevator starter in the building, was presented with a purse of $500 by **Charles B. Crofton,** president of the exchange, on June 8. The exchange was built in 1888 but although the elevators are the old fashioned pull cable type there has never been an accident connected with them since he has been supervisor.

●

T. H. Sherwood, Walnut Creek Milling Co., Great Bend, Kansas, and **R. D. Cobb,** W. J. Jennison Co., Minneapolis, visited the Chicago offices of The Northwestern Miller on June 4. They were en route east on a business trip.

●

J. N. Claybrook, New York representative of the Eagle Roller Mill Co., New Ulm, Minn., is visiting the mill this week. Mrs. Claybrook is accompanying him.

●

Willis C. Helm, vice president of the Russell-Miller Milling Co., Minneapolis, on June 5 observed his golden wedding anniversary, and was the recipient of felicitations from his many friends in the trade. Mr. Helm is a past president of the Millers National Federation.

●

Acyr Marques, of Pinheiro Gomes & Co., agents for General Mills, Inc., in San Ruis de Maranhao, Brazil, who is spending about a month in the United States, was introduced on the New York Produce Exchange floor by **Monroe Wellerson,** manager of the mill's export department at New York.

●

Fred Borries, of Pillsbury Mills, Inc., Nashville, Tenn., was in Chicago last week.

●

B. V. Hopper, eastern sales director, and **L. V. Mika,** central states director, Valier & Spies Milling Co., St. Louis, were calling on the trade in their respective territories last week.

●

H. Wallace Applegate, Mennel Milling Co., Toledo, attended a conference of the Ohio Grain, Mill and Feed Dealers Association at Columbus last week at which about 40 were present. He says that he never saw the wheat crop in Ohio looking better, a fact on which all were agreed, and that the outlook suggests a crop of not less than 50,000,000 bus in the state, equaled but twice before.

●

Mr. and Mrs. J. A. Willis celebrated their twenty-fifth wedding anniversary with some friends the evening of June 5 at the Kansas City Club. Mr. Willis, vice president and general manager of Ismert-Hincke Milling Co., Kansas City, started his milling career in the Northwest. The couple was married in Minneapolis, where Mr. Willis was working at the time.

●

O. L. Spencer, general manager, Cleveland branch, Montana Flour Mills Co., is calling on the trade in the New England states. **W. E. Pittsley,** treasurer, is on a fishing trip in Minnesota.

●

Dr. J. A. Anderson, chief chemist for the Canadian Board of Grain Commissioners, Winnipeg, Man., stopped off in Chicago on June 8.

●

Attending a meeting of the budget committee of the Commander-Larabee Milling Co., in Minneapolis, this week, are: **T. C. McGrath, Ellis English, F. H. Schindler** and **B. S. Hargis** of Kansas City, and **F. S. Birkenmeyer** of Buffalo.

●

Visitors at the Pillsbury Mills., Inc., headquarters in Minneapolis this week are **J. R. Henderson,** regional bulk manager at Atlanta, Ga., and **John T. Jones** of the Globe Mills division, Los Angeles.

●

R. D. Cobb of the W. J. Jennison Co., Minneapolis, and **Fred Burrall,** William Kelly Milling Co., Hutchinson, Kansas, were in Pittsburgh last week.

●

Visitors to Cleveland last week included **Logan P. Johnson,** sales manager, Atkinson Milling Co., Minneapolis, and **W. P. Tanner,** of Tanner-Evans-Siney Corp., New York.

●

William C. Baird of the Baird Brokerage Co., Nashville, has returned from a trip to Chicago.

●

R. S. Dickinson, president of the Nebraska Consolidated Mills Co., Omaha, returned June 9 from a fortnight's trip to the company's plant at Decatur, Ala. **J. V. Bass,** sales manager, left the following Monday for a two weeks' trip in southern territory.

●

C. F. Tillma, manager of the Oklahoma City office of Pillsbury Mills, Inc., is in Chicago on business.

●

About 25 cereal chemists of the Kansas City region attended a two-day wheat identification class at Rockhurst College last week, with **John Whinery,** Rodney Milling Co., in charge.

●

Jack B. Ferguson, district sales manager for Standard Milling Co., stationed at St. Louis, was "trapped" by flood waters at Newburg, Mo., June 9 when he was returning from a trade trip to Arkansas. A full 12 hours late getting into St. Louis, Mr. Ferguson went that time without food, as did many passengers of that and other trains. The Red Cross helped with the food situation while crews hastily repaired track and bridge damage. The flash flood took seven lives.

●

F. A. Theis, president of Simonds-Shields-Theis Grain Co., Kansas City, and president of the Kansas City Chamber of Commerce, has been appointed a member of the committee in charge of arrangements for the celebration welcoming **Gen. Dwight D. Eisenhower** to Kansas City. The general will be in the city only about three hours, but more than 200,000 people are expected to be out to welcome him. He leaves with his brother Arthur, vice president of the Commerce Trust Co., for Abilene, Kansas, the same day by plane to visit his mother. Brother Milton, president of Kansas State College, and the rest of the family will gather for the reunion.

●

D. J. Schneider, Allentown, Pa., who represents the Eagle Roller Mill Co. in eastern Pennsylvania, West Virginia and Maryland, and **T. H. Cavanaugh,** the eastern Wisconsin representative, with headquarters in Appleton, visited the home office in New Ulm, Minn., last week. **W. H. Carr,** Leicester, Mass., **A. G. Frantz,** Worcester, Mass., and **Anthony Marianetti,** of Providence, R. I., the company's New England representatives, are in New Ulm this week.

AWARD FOR BRAVERY — Those who have known Robert B. Smith since he was a small boy in Salina probably are not at all surprised at the many awards that have been given him for bravery and conspicuous service with Gen. Patton's Third Army. This modest but aggressive son of Jess B. Smith, head of the Associated Millers of Kansas Wheat, is shown here receiving an Oak Leaf Cluster to the Silver Star, reported in last week's Northwestern Miller, from Maj. Gen. Lowell W. Rocks. He also has the Bronze Star and the Purple Heart, with Oak Leaf Cluster.

A first lieutenant when this award was made, the young officer is now captain. His commission was signed by Gen. Patton.

A tenacious student of everything in which he is interested, Capt. Smith became one of the best violinists in the Salina area. He was employed by Shellabarger Mill & Elevator Co. before enlisting in the army. Mrs. Smith and his son, Jeffrey, live in Salina.

★ ★ ★ ★ ★

WITH THE ARMED SERVICES

★ ★ ★ ★ ★

Lt. Col. Theodore B. Hansen, formerly with the Minneapolis bakery service department, Pillsbury Mills, Inc., is having trouble shaking a case of jungle fever he caught during 15 months' duty in the South Pacific. Soon he will be in William Beaumont General Hospital at El Paso, Texas, for further treatment. In the year he's been back in this country half his time has been spent in hospitals. He joined the company in 1938, entered service in April, 1941, and spent his overseas time with American defense forces in northern Australia. He served as executive officer of several antiaircraft units which were attached to the Army Air Forces.

★

2nd Lt. James R. Baird, husband of **Mrs. Rachel Johns Baird,** secretary of the Cumberland Flour & Feed Brokerage Co., Nashville, who won a Silver Star last year for gallantry in France, has been awarded the Bronze Star medal for action in the European theater. He is with the 30th Infantry Division.

★

Lt. David T. McLaughlin, son of **William G. McLaughlin,** eastern sales manager in New York for the International Milling Co., Minneapolis, after a five-day furlough with his parents, has left for San Francisco. Lt. McLaughlin recently has been an infantry instructor at Camp Blanding, Fla.

★

Cpl. Walter J. Hellmueller, before entering service a baker with his father's plant, the Hellmueller Baking Co., Louisville, is now in Germany after 33 months with a signal corps division of the Seventh Army. He previously served in North Africa, Italy and France.

★

Navy Officer Luke Kindstrom, on leave from the feed mill division of Pillsbury Mills, Inc., has been advanced in rank from lieutenant (j. g.) to lieutenant. He is stationed at Hollywood, Fla.

★

Jerry Larson, midshipman, son of **Edwin A. Larson,** manager of the bakery special flours department of Pillsbury Mills, Inc., Minneapolis, went to New York from Annapolis and was a visitor at the company's offices there.

★

Lt. Col. Francis J. FitzPatrick, vice president-on-leave of the Simonds-Shields-Theis Grain Co., Kansas City, is home for a 10-day leave to be with his mother, who is ill. Col. FitzPatrick is still in the Panama Zone of operations.

★

The Pillsbury Service Honor Roll has added seven new names, bringing the total number of Pillsbury employees in service to 847. There are 20 gold stores on the Honor Roll.

★

Clarence N. Recker, who before joining the navy was the Pittsburgh district representative of the Montana Flour Mills Co., has been released from the navy.

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A Kansas Turkey Wheat Flour
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HIGH GLUTEN FLOURS
For Bakers
The Morrison Milling Co.
Denton, Texas
Emphatically Independent

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FLOURS Complete Range
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The H. D. LEE FLOUR MILLS CO.
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★ ★

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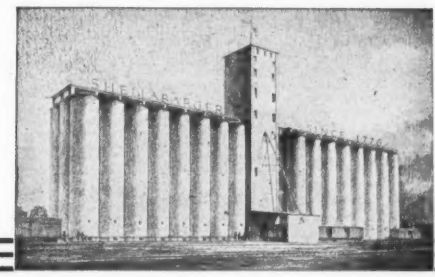

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Dependable Hard and Soft Wheat Bakery and Family Flours
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Great Bread Makers
From Selected Spring Wheat

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FARM GOLD
APEX—Fancy Clear
RED INDIAN—First Clear

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A HIGH QUALITY WISCONSIN RYE FLOUR
All Grades
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WAUPACA WISCONSIN

MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: Sales of flour in the Southwest reached 72% of capacity last week despite little interest from regular buyers and mills' desire not to sell the trade farther ahead than July 1. Sales the previous week were 129%, compared with 41% a year ago.

Before the new Office of Price Administration order came out permitting mills to raise their flour ceilings if the subsidy is not extended, sales of flour already had subsided except for the protected army business. Those who have commitments reaching beyond June 30 become more concerned about them as subsidy extension is delayed.

As a consequence, there was a sharp decline in the volume of business booked to the regular trade, and many millers completely withdrew from the market at the end of the week. Such action, deemed necessary in the face of the subsidy uncertainty, is expected to speed up the necessary legislation.

Operations have improved throughout the Southwest as the result of war plant labor becoming somewhat mare available and also the ability of mills to attract school boys who now are on their summer vacations. Nearly every interior point reports better production.

Clears continue firm and are not selling in large volume. Millfeed is tight as it has ever been. Export business is fair.

Quotations June 9: established brands family flour $4.15@4.35; bakers short patent $3.30@3.40, standard patent $3.25@3.35, straight grade $3.25@3.30, first clears $2.85@3, second clear $2.50@2.65, low grade $2.40@2.50.

Two mills report domestic business active, 9 fair, 3 quiet, 4 slow and 6 dull.

Oklahoma City: Some sizeable government sales brought average sales of flour last week to 89%. A year ago sales averaged 56% and the previous week 60%. Bakers took approximately 78% of bookings and the family trade 22%. Operations averaged 87%, compared to 85% the previous week and 70% a year ago. Prices were unchanged. Quotations, sacks, delivered Oklahoma rate points June 9: hard wheat short patent $4@4.50; soft wheat short patent $4@4.50, standard patent $3.60@4, bakers short patent $3.67, bakers standard $3.62.

Omaha: The market continues active, with most mills working at capacity. Most are on a seven-day week, a few on six days. All are selling all they can make, with government and military agents continuing as the largest buyers.

Some quarters are booking sales in advance, while some others seem to shy from future bookings in view of the subsidy delay.

Shipping and boxcar bottlenecks seem to be easing very slightly as buyers and shippers learn to live with the highly restricted situation. Thoughtful shipping instructions from many quarters aiding.

Prices continue at the higher levels reached last week with the advance in the wheat price.

Quotations June 9: family short patents $3.95; standard patents $3.65; bakers short patents $3.41; high protein clears $3.31; fancy clears $2.88; low grade clears $2.75.

Wichita: With an improved labor situation mills operated from 90 to 100% last week in an attempt to catch up with orders. All mills are behind in directions. Sales were slow, varying from 10 to 20% for bakery sales. One large government order was reported.

Hutchinson: The flour trade last week continued to mark time, as the new crop period neared, and aside from extensive bookings by the army, new business was small in volume. Very slight improvement in inquiry was noted and bookings were limited to spot fill-ins for the established trade. Shipping directions posed an increasingly difficult problem, with the army and the regular trade clamoring for deliveries.

Salina: During the week the regular trade has shown a decided improvement in its demand for flour. Shipping directions continue in good volume.

Texas: Flour business last week was extremely spotted. Some mills did a heavy volume of business and still others did very little, depending on the mills' eagerness to sell, due to pending subsidy legislation. A heavy demand for bakers flour and considerable army business brought total sales by some mills up to as high as 200 to 250% of capacity, while others reported very little trading. Family flour sales remained at around 15 to 20% of capacity. Operations continue at maximum capacity. New crop flour is selling 5@10c under the ceiling. Quotations June 9: family flour $3.90@4.15, high patent, $3.65@3.90, old crop standard bakers, ceiling $3.52; first clears, enriched $3.15@3.25, delivered TCP.

THE NORTHWEST

Minneapolis: The reported sales by spring wheat mills last week are a little misleading, since the total includes a carryover from the previous week which was not compiled on time. The total represents about 165% of capacity, against 245% the reported total for the preceding week, and 37% a year ago.

Business last week was really rather quiet, following the activity of the previous seven-day period. Bakers seemed to have filled all urgent needs, and simply withdrew. What little business passed was of a routine nature and small in volume.

The outlook for the current week is none too good. Pending congressional action definitely continuing the subsidy on flour after June 30, the OPA will permit millers to insert a clause in contracts allowing them to add enough to their flour ceilings to absorb the subsidy. Naturally, buyers will not take kindly to the idea of paying approximately 66c bag more for their flour, so millers do not anticipate sales of importance this week.

Meantime, shipping directions are heavy, and mills are operating close to capacity.

Quotations June 11: established brands family flour, enriched $4.30@4.46, high gluten bakery flours $3.54, bakery short patent $3.44; first patent $3.44, standard patent $3.34, fancy clear $3.24@3.34, first clear $3@3.10, second clear $2.70@2.90, whole wheat $3.30@3.54.

Interior mills, including Duluth: Fair to good sales are reported, evidently an aftermath of the excellent business reported by city millers a week earlier. Shipping directions are plentiful, and demand for feed is, if anything, keener than ever.

THE CENTRAL WEST

Chicago: Demand has slowed up considerably and only the usual small lot buying is reported. Several mill representatives report that they are unable to make new sales as their mills are hesitant about taking on additional business now due to the uncertainty of the subsidy. Directions continue fairly brisk. Only moderate amount of family flour is being sold. Deliveries are fair. Quotations June 9, in sacks: spring top $3.50@3.57, standard patent $3.40@3.47, first clear $3.10@3.41, second clear $2, family flour $4.51; hard winter short patent $3.50@3.57, 95% patent $3.40@3.47, first clear $2.68@3.09; soft winter short patent $3.45@4.31, standard patent $3.26@4.06, first clear $2.75@3.16.

St. Louis: Outside of sales made to the army, bookings are indifferent. General buying by the trade is being checked due to the uncertainty of the subsidy bill. Sales made otherwise consist of scattered lots to the baker and blenders for nearby shipment. A good demand exists for clears at firm prices with offerings being light. Jobbers report a slight improvement in new bookings. Sales consist of nearby to 120-day shipment. Some mills are only making sales up to June 30. Sugar and shortening situation practically unchanged from recent date.

Central states mills report trade generally buying for present requirements, only awaiting settlement of the subsidy bill. Prices are 5@10c under the ceiling.

Quotations June 9: soft winter wheat patent $3.98, cake flour $4.58, straight $3.74; family short patent $4.29, straight and 95% $4.29, first clear $3.32@3.75; hard wheat baker patent $3.44, family patent $3.57@3.83, straight and 95% $3.44@3.49, first clear $2.85@3.38; spring wheat patent, straight and 95% $3.44.

Toledo: The acceleration in sales that took place last week seems to have carried over, and it is not unusual to find mills with all the business they can handle. There are complaints from some brokers and salesmen that their mills are not able to take on all the flour that is offered them, even at ceiling prices. Some sales are being made, or have been made recently, below ceiling levels, and they are hard to understand because ceilings could probably be obtained in all instances. There is evidence that buyers are showing more concern about their future requirements as developments in the situation become more clearly known and recognized. It seems clear that the overall requirement for flour will cover all that can be manufactured, and then some, and that the only impediment will be the ability to move it. The car situation is somewhat easier.

Cleveland: Jobbers have enjoyed a very brisk week with the baking trade. Demand has been in excess of the ability to deliver orders. A great many bakers have contracted ahead for the next 60 days and most bakers are carrying large inventories feeling that there may be a shortage of flour and a "bird in the hand is worth two in the bush." Jobbers have been forced to make contracts this week in order to take care of their commitments with the bakers. Most flour has been bought at ceiling prices. Family flour business has been surprisingly brisk, especially for this time of the year and when one considers the lack of shortening and sugar. Bakers have come to the conclusion that it will be necessary to discontinue the frying of doughnuts, eliminate cookies, and devote more time to bread, rolls and Danish. Cakes will necessarily have to be eliminated to a certain extent. Some bakers intend to close at least two days a week. The situation looks very dark for the future.

Quotations June 9: spring first patent $3.80@3.90, standard patent $3.70@3.80, first clear $3.30@3.50; hard winter short patent $3.60@3.70, 95% patent $3.50@3.60, first clear $3.10@3.30; soft winter short patent $4.40@4.65, straight $3.60@3.80, first clear $3.10@3.40.

EASTERN STATES

Buffalo: Sales are light in comparison with the previous week, but inquiries and interest by the bakery trade are very active. The dip in business is due to the heavy sales of the previous week. Mills continue to receive a heavy flow of directions, forcing very heavy production. Clears are very strong and in good demand. An early resumption of buying is anticipated. Quotations June 9, cottons: spring first patent $3.80, standard patent $3.70, first clear $3.45; hard winter short patent $3.80, 95% patent $3.70, first clear $3.35; soft winter short patent $3.75, first clear $3.10.

New York: Brisk business of a week ago is slowing down current flour sales to fill-in orders. The only round lot buying is from the moderate-sized bakers who have done limited replenishing, but, in general, dullness prevails. In contrast with the recent sales of spring standard patents, for example, at $3.65, mills now ask $3.70, but are not pressing sales at all and nearly all of them now include a cancellation clause dependent on the extension of the subsidy. Many earlier contracts did not carry this, which now occasions some concern. The firmness of prices, nearness of the new winter wheat crops, uncertainty over the subsidy, apathy of mills and sufficiency of previous purchases all combine to create a slow market. Flour jobbers continue to find the competition of houses who can also offer sugar and shortening a decided impediment toward closing sales with the small baker, and with the large chain buyers not anxious to order, there is not an active demand.

Quotations June 9: spring high glutens $3.95, standard patents $3.70@3.75, clears $3.50@3.60; southwestern short patents $3.75@3.85, standard patents $3.69@3.75, clears $3.20@3.35; soft winter straights, Pennsylvania $3.65@3.70, Pacific coast $3.67@3.77.

Boston: New flour business is almost completely dormant. Mill agents are disturbed over failure of Congress to act on the subsidy extension and are not looking for further commitments until the bill is finally passed. In cases where there is a real need for flour, sellers will not let the trade go without, but such instances are rare. The baking trade is covered ahead comfortably and, with mill quotations strong and the movement of winter wheat just ahead, bakers see no reason for worrying about additional commitments at this time. Another factor which detracts from their interest in the flour market is the prospect that they will be forced to cut bakery production in the third quarter, due to drastic revisions in sugar and shortening quotas. Interest in family flour also lags and commitments are small and infrequent. Mill quotations are firm. Quotations June 9: spring high gluten $3.92@3.97, short patent $3.82@3.87, standard patent $3.72@3.77, first clear $3.42@3.48; southwestern short patent $3.82@3.87, standard patent $3.72@3.77; Texas short patent $3.82@3.87, standard patent $3.72@3.77; soft winter patent $3.75@3.90, straights $3.65@3.75, clears $3.55@3.65.

Philadelphia: Bakers are pretty well supplied for near wants and millers anticipate a slow demand during the immediate future, apart from government purchases. As most flours are held around ceilings, particularly hard wheat, there is little incentive for bakers to increase their holdings, especially with the new winter wheat movement getting under way in the Southwest. Another factor tending to limit buying of flour is the prospect of further shrinkage in sugar allotments during the last half of the year, and inadequate supplies of shortening. Continued delay in acting upon the subsidy in Washington induces a cautious selling policy on the part of the mills, but in most cases they are proceeding on the assumption that final approval is certain, and offering accordingly. Overall business accomplished is of narrow proportions, and confined largely to small fill-in lots to meet immediate requirements.

Quotations June 9: spring wheat short patent $3.80@3.83, standard patent $3.70@3.73, first spring clear $3.50@3.55; hard winter short patent $3.80@3.83, 95% $3.70@3.73; soft winter straights, nearby $3.35@3.45.

Pittsburgh: Bakery flour buyers are discussing the other ingredients that make up the loaf and other baked products, rather than flour, particularly the shortage in shortening and sugar. This has slowed up buying to some extent as bakers hesitate to buy flour beyond the limits of their shortening and sugar supplies. Hesitancy in final word on subsidies has produced an added note of caution in flour buying. After the limited flurry in buying last week-end, and with flour prices now held at or very near ceilings, there is no incentive to buy. Family flour sales are at a low point in the city, but are improved in rural districts. Clears are firm. Cake flours are quiet. Shipping conditions continue to improve.

Quotations June 9: hard winter bakers short patent $3.77@3.80, straight $3.65@3.70, high gluten $3.90, first clear $3.22; spring bakers short patent $3.75@3.80, standard $3.65@3.70, high gluten straight $3.90, first clear $3.47@3.60; soft winter bakers cake flour $4.35@4.57, intermediate grade $3.90, straight $3.67; Pacific coast $3.70, family flour $4.10@4.71.

THE SOUTH

New Orleans: Sales here are very limited and on a hand-to-mouth basis, awaiting the movement of new crop. While the supply is ample, mills report being a little behind on shipping directions, due, among several reasons, to boxcar shortage. Most firms are trying to clean up old bookings. Some sales are slightly lower than the previous week, buyers' ideas being lower than mill offering prices. Quotations June 9: spring wheat $3.50@3.70, spring standard patent $3.50@3.60; hard winter short patent $3.20@3.40, soft winter straights $3.40@3.50, spring short patent $3.30@3.40.

Nashville: The flour business here is about unchanged from the past several weeks. New sales are limited to the usual day-to-day sales for reasonably prompt shipment and consist of the top grades.

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per sack (cwt), packed in 100 lbs. (Canadian quotations per bbl of 196 lbs.) All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cleveland	†Nashville
Spring first patent	$3.50@ 3.57	$....@ 3.44	$....@....	$....@ 3.44	$....@ 3.80	††$....@ 3.95	$....@....	$3.80@ 3.83	$3.82@ 3.87	$3.80@ 3.90	$....@....
Spring standard patent	3.40@ 3.47	....@ 3.34	....@....	....@ 3.44	....@ 3.70	3.70@ 3.75	....@....	3.70@ 3.73	3.72@ 3.77	3.70@ 3.80	....@....
Spring first clear	3.10@ 3.41	3.00@ 3.10	....@....	....@....	....@ 3.45	3.50@ 3.60	....@....	3.50@ 3.55	3.42@ 3.48	3.30@ 3.50	....@....
Hard winter short patent	3.50@ 3.57	....@....	3.30@ 3.40	....@ 3.44	....@ 3.80	3.75@ 3.85	....@....	3.80@ 3.83	3.82@ 3.87	3.60@ 3.70	....@....
Hard winter 95% patent	3.40@ 3.47	....@....	3.25@ 3.30	3.44@ 3.49	....@ 3.70	3.69@ 3.75	....@....	3.70@ 3.73	3.72@ 3.77	3.50@ 3.60	....@....
Hard winter first clear	2.68@ 3.09	....@....	2.85@ 3.00	2.85@ 3.38	....@ 3.35	3.20@ 3.35	....@....	....@....	....@....	3.10@ 3.30	....@....
Soft winter short patent	3.45@ 4.31	....@....	....@....	....@ 3.98	....@ 3.75	....@....	....@....	....@....	3.75@ 3.90	4.40@ 4.65	....@ 4.59
Soft winter straight	3.26@ 4.06	....@....	....@....	....@ 3.74	....@....	3.65@ 3.70	*....@....	*3.35@ 3.45	3.65@ 3.75	3.60@ 3.80	4.60@ 4.85
Soft winter straight (Pac. cst.)	....@....	....@....	....@....	....@....	....@....	3.67@ 3.77	....@....	....@....	....@....	....@....	....@....
Soft winter first clear	2.75@ 3.16	....@....	....@....	3.32@ 3.75	....@ 3.10	....@....	....@....	....@....	3.55@ 3.65	3.10@ 3.40	4.15@ 4.45
Rye flour, white	3.70@ 3.86	4.02@ 4.17	....@....	....@ 4.42	....@ 4.18	4.10@ 4.22	....@....	4.00@ 4.10	....@....	3.90@ 4.10	....@....
Rye flour, dark	2.79@ 3.52	3.42@ 3.57	....@....	....@ 3.92	....@ 3.68	....@....	....@....	....@....	....@....	2.90@ 3.10	....@....
Semolina, No. 1	....@ 3.75	....@ 3.62	....@....	....@ 3.99	....@ 3.98	....@ 4.03	....@....	....@ 4.03	....@....	....@....	....@....

	Seattle	S. Francisco	Standard patent—	Seattle	San Francisco
Family patent	$....@....	$....@....	Dakota	$....@....	....@....
Soft winter straight	....@....	....@....	Montana	....@....	....@....
Pastry	....@....	....@....			

	Toronto	**Winnipeg
Spring top patent‖	$....@ 5.05	$....@ 5.30
Spring second patent‖	....@ 4.40	....@ 4.80
Spring first clear‖	....@ 3.30	....@....

	Toronto	**Winnipeg
Spring export‡	$10.75	....
Ontario winter straight‡	5.50	....

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ‡Secondhand cottons. ‖98-lb cottons. §280-lb cottons. ††High glutens.

A little demand is evident for cutoffs, although the government's purchases of this grade have raised the price beyond buyers' ideas. Therefore, no sales were made to speak of on this grade. As a rule, mills serving this territory are booked ahead for their entire June production, principally on government contract, and therefore no bookings of any size were made. Some wheat has begun to move, but it will be from four to six weeks before the movement is in full swing. Most buyers are marking time until the harvest. Shipping directions on old contracts are good and old contracts are reported to be unusually low. Outbound shipments to merchants, jobbers and wholesalers in the South and Southeast range from slow to fairly good. The shortage of shortening is the principal factor contributing to the dullness of family flour sales. Sales of bakery products continue at a peak and bakers' products are selling about as fast as they are produced. Flour prices are unchanged from a week ago, but there is a tendency toward higher quotations.

Quotations June 9: soft wheat cake flour $4.59; soft wheat cake flour, not over .41% ash $3.92; cake flour, .41% or more ash $3.69; short patent family $5@5.10; standard patent $4.85@5, straight $4.60@4.85, clear $4.15@4.45.

United States Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending June 2, 1945, and June 3, 1944, as reported to the United States Office of Marketing Services (WFA), in bus (000's omitted):

	American		Canadian in bond	
	June 2	June 3	June 2	June 3
	1945	1944	1945	1944
Wheat	65,075	95,640	16,152	8,835
Corn	16,073	7,696	...	...
Oats	11,180	8,031	2,491	869
Rye	8,090	21,635	285	1,267
Barley	16,988	8,948	1,101	40
Flaxseed	477	2,845	...	54
Soybeans	8,776	7,475	...	...

Stocks of United States grain in store in Canadian markets June 2 (figures for corresponding date a year ago given in parentheses): wheat none (2,149,000) bus; corn 578,000 (585,000); soybeans, none (28,000).

Rye Flour Output

Following is the rye flour output reported to The Northwestern Miller by mills at Chicago, Minneapolis and outside points in the Northwest, in sacks, with comparative figures for the previous weeks:

	May 19	May 26	June 2	June 9
Five mills	33,102	36,899	44,182	*38,228

*Four mills.

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CRACKER FLOUR
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Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

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Progressive southern feed manufacturer, laboratory equipped, has vacancy for college trained nutritionist capable of formulating efficient feeds by application of modern research on nutritional requirements. Should be able to judge new products, conduct some experiments and give guidance to farm service department. Plant specializes in poultry and dairy feeds. Give full background and qualifications and salary desired. Will be kept confidential. J. T. Gibbons, Inc., P. O. Box 284, New Orleans 9, La.

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Capable Second Miller

for 1,400-sack spring wheat mill. Modern plant located in fine Minnesota town, pleasant living conditions, steady work, good schools, excellent hunting and fishing. A real opportunity for a good miller. Apply at once. Red River Milling Co., Fergus Falls, Minn.

WANTED—SECOND MILLER FOR 500-bbl mill, making mostly family flour, Kansas wheat. Address 7332, The Northwestern Miller, Minneapolis 2, Minn.

THE STANDARD MILLING COMPANY has a real opportunity for a topnotch proven flour salesman. Contact The Standard Milling Company, 309 W. Jackson Blvd., Chicago 6, Ill.

HEAD MILLER WANTED—FOR A 5,000-sack Kansas mill. Must be energetic and not over 40 years of age. Please send references, years of experience and state other qualifications. Address 7348, The Northwestern Miller, Minneapolis 2, Minn.

OMAR, INCORPORATED, HAS OPENING for a good producer in Central Iowa territory. We need a man accustomed to calling on retail as well as jobber trade. This is a very desirable territory Omar, Incorporated, 1910 Harney St., Omaha, Neb.

YOUNG MAN WITH MECHANICAL AND some drafting experience for machinery installation and service to travel midwestern territory. Prefer man living in Kansas City with flour mill experience. Straight salary and traveling expenses. Address 7341, The Northwestern Miller, 612 Board of Trade Building, Kansas City 6, Mo.

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MILL MANAGER AVAILABLE—FORMERly in charge of 600-sack Minnesota mill and now ready for similar position or as assistant manager larger mill. Familiar with wheat buying, traffic, credits and all phases of mill operation. Will be interested in any section. Address 7353, The Northwestern Miller, Minneapolis 2, Minn.

FLOUR SALESMAN OF 14 YEARS' EXperience again available for representation of a good mill in the Pittsburgh and tri-state territory, especially on bakery flour. Have just returned from navy service. Active on territory up to early 1944 and sold for last mill six years. Address 7340, The Northwestern Miller, Minneapolis 2, Minn.

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WANTED—BRIGHTWOOD BOX MACHINE—Pneumatic scale packaging machine; two flour blenders. Address 4970, The Northwestern Miller, Minneapolis 2, Minn.

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In the position of assistant sales manager of a 4,000-cwt flour mill he will learn all aspects of flour mill administration, and will be advanced to greater responsibility when ready.

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CANADIAN MARKETS

Toronto-Montreal: Sales of spring wheat flour in the domestic market are normal or better. This business varies little. Exporting trade is exceedingly active. The British Ministry of Food was in the market for additional supplies of flour for shipment between now and the end of August but these orders had to be refused since mills are booked to capacity for that period and could not take on another barrel. The only new business done was with UNRRA for flour for the Philippines. All Canadian mills are grinding to capacity on export business and there is more demand than can be supplied. Prices are unchanged at ceiling levels in the domestic market and are stabilized for export. Quotations June 9: top patents $5.05 bbl, seconds $4.40, bakers $4.30, in 98's cotton, mixed cars, track, Toronto-Montreal freights, add 10c extra where cartage is performed. For export, government regulation flour $10.75 per 280 lbs, f.a.s. winter ports, June-July-August seaboard.

The winter wheat flour market is unchanged. Supplies are light as little or no wheat is to be had for grinding. Mills are finding it difficult to get old flour orders filled and cannot accept any more export offers. The larger mills have adopted a quota system to ensure fair distribution amongst domestic buyers of their diminishing supplies. Prices are at the ceiling. Quotations June 9: Ontario winters straight $5.50 bbl, in secondhand cottons, Montreal freights; for export $6.25 bbl, in cotton bags, Canadian seaboard, plus equalization fee of $1.25 bbl.

Deliveries of winter wheat are poor. Due to the backward season feed requirements have been heavy and farmers have been using their wheat for this purpose. Prices are the ceiling. Quotations June 9: $1.26 bu, Montreal freights, which is equivalent to $1.12@1.14 bu, f.o.b. shipping points, according to freights.

Winnipeg: Export business in Canadian flour last week was insignificant, but mills report domestic demand continues keen and orders on hand are sufficient to keep plants operating to capacity for some time. Supplies are moving freely and there is no suggestion of any let-up in export movement. Mills are at present booked up into August on export orders. Quotations June 9: top patent springs for delivery between Fort William and the British Columbia boundary, $5.30, cottons; second patents $4.80; second patents to bakers $4.60.

Vancouver: Growing scarcity of sugar and shortening is having an effect on flour sales. The latest cut affects the use of sugar and while there has been only a minor reduction in flour sales so far, a noticeable reduction is expected shortly.

Bread manufacturers are now permitted only 55% of the sugar they used in the 1941 period and the same percentage applies to certain classes of biscuits. Cake and pastry manufacturers are permitted to use only 50% of the 1941 quota. In addition there is a growing scarcity of both shortening and lard, with indications that the worst is yet to come in the case of both these ingredients.

The public will have to turn more to bread and eat less sweet baked goods with the result that bread flour sales should hold fairly well.

Cake flour supplies are short although there is a fair quantity of pastry flour. Pastry flour sold in this territory comes mostly from Ontario and supplies are generally short at this season since the new Ontario grind comes on the market in August-September.

In the export field there are indications that some shipments will be made to the South Pacific through this port under UNRRA but no details have been announced. A good share of this business is understood to be destined for the Philippines.

Hard wheat flour prices, June 9, were unchanged, cash, carlot basis, cotton 98's: top patents $5.40, bakers patents $5, vitamin B $4.90. Soft wheat flour is firm at $7.50.

MILLFEED MARKETS

Minneapolis: The tightness in the millfeed supply is more acute than ever. Jobbers say it is practically impossible to buy any and that they cannot begin to take care of their customers' needs. Feed grains of all kinds are bringing fancy prices, making millfeed at its ceiling all the more attractive. The demand from mixers is apparently unlimited. Mills are getting behind again on contracts, due largely to increased mill-door and mixed-car demand. Since mixed-car buyers take a percentage of flour with each car, mills naturally favor these customers. There is an insistent demand for any grade of millfeed at full ceilings for any shipment up to the close of the calendar year. Ceiling: $37.75.

Oklahoma City: Excellent demand and scarcity of supplies characterize the millfeed market. Quotations, burlaps, carloads for southern deliveries: bran, mill run and shorts $1.95 cwt; for northern deliveries: $1.90.

Omaha: Supply is good, demand is better and sales are good. Quotations: $36.50 ton.

Wichita: Demand for millfeeds continues to exceed supplies although mills were running almost full time last week and have a fair prospect to continue heavy operations for some weeks. Quotations on bran and shorts, basis Kansas City, $36.50 ton.

Hutchinson: Millfeed interest is broader, if anything, and mills cannot begin to supply the demand. Quotations are at the ceiling, $36.50@37.50, Kansas City basis, for all types of feed.

Salina: Demand is excellent with prices steady and the supply is insufficient to take care of trade requirements. Bran and shorts continue to sell at ceiling levels.

Fort Worth: Demand for millfeed is good. There have been limited offerings of bran but not enough to fill the demand. No carlot shorts are available. Quotations, ceiling carlots, wheat bran and grey shorts $42.20, sacked, delivered TCP, in mixed cars $1 ton higher.

Toledo: No let-up in demand even with pasturage in excellent condition for feeding, and all kinds of millfeed are selling at ceiling levels, $42.37, bulk, per ton, f.o.b. Toledo.

Cleveland: Demand for feed is greater than it has been for some time. Mills are unable to ship carlots. Trucker demand is greater than the supply at ceiling prices. Quotations: spring bran, hard winter bran, standard middlings, flour middlings and red dog, all $42.99 ton.

Buffalo: Demand for millfeeds is very intense but supplies, notwithstanding the near record proportions of the output, still are far from satisfying the wants of the trade. Trend is firm. Quotations; all varieties $41.55, straight carlots, f.o.b. Buffalo.

Boston: Offerings are extremely scarce, with mill grind going almost entirely to cover previous commitments. Resellers are unable to locate supplies. Demand continues heavy and is affected by lack of government offerings of feed wheat. Spring bran, midds., mixed feed, red dog $45.67@46.17 ton.

Philadelphia: Offerings are light, while demand is fairly active. Prices are firmly maintained. Standard bran, pure spring, hard winter, soft winter, std. midds., flour and red dog, all $44.84@45.34 ton.

Pittsburgh: There is no let-up in the demand for millfeeds. Offerings continue light. Corn is not offered and all corn now available to the consuming public is from stocks that were held in reserve by jobbers. Oats still are offered freely and firmly priced. Bran, standard middlings and red dog, at ceilings of $44.85, continue hard to locate. The car situation is better but light offerings are now a major problem.

Nashville. The demand for bran and shorts has continued heavy and offerings are very light as most mills are from one to two weeks behind on production, due principally to shortage of labor. Quotations still are at the ceilings, both bran and shorts being quoted $43.30@44.30 ton, f.o.b. Nashville.

Ogden: Millfeed business is steady, with demand exceeding supply, and no relief in sight. Mills are well caught up on bookings, and could sell more if they had it. Quotations: red bran and mill run, blended, white and midds. $36.30, carload lots, f.o.b. Ogden. Denver prices: $38, ceiling. California prices: $42.03, carlots, f.o.b. San Francisco, with Los Angeles prices up $1, ceiling.

Toronto-Montreal: Millfeed is in heavy demand. It is cheap at ceiling prices and supplies are inadequate for requirements of domestic buyers. Production is at record levels and all but about 5% is sold in domestic markets. Quotations June 9: domestic ceiling, bran $29, shorts $30, midds. $33 ton, net cash terms, bags included, mixed or straight cars, Montreal freight basis.

Winnipeg: Demand remains good and the supplies from western mills are moving chiefly to eastern Canada. Demand in the three prairie provinces is very slow. Quotations: Manitoba and Saskatchewan bran $28, shorts $29; Alberta bran $25.50, shorts $26.50; small lots ex-country elevators and warehouses $3 extra.

Vancouver: After holding in the tightest position on record for several months, the situation has become somewhat easier. However, the feeling among the trade is that this is only a temporary condition which is likely to end sometime in July. Reason for this belief is that this is the nonactive feeding season generally, although more mashes are being used, especially in the poultry industry. The main reason for the easier trend is the stopping by the federal government of the sale of export permits for millfeed. It is reported that dealers were buying up these permits from the small mills and thus diverting millfeed across the line which was needed in Canada. The result of the stopping of these permits is that some of the smaller flour mills are now looking for millfeed orders in British Columbia and the larger mills are making deliveries more freely. Prices are firm, cash car quotations: bran $29.80, shorts $30.80 and midds. $33.80.

RYE PRODUCTS

Minneapolis and interior Minnesota: It is difficult for millers to understand the attitude of the trade toward buying, with prices gaining ground every week and everything pointing to still higher levels. But buyers evidently cannot reconcile themselves to paying more for rye flour than is asked for wheat patents. Buyers, large and small, are covering only immediate needs and are letting the future take care of itself. Carlot orders predominate, and even these are not plentiful.

Receipts of grain at terminals are falling off, with the option up about 2½c bu, and the premium on cash rye 1c higher for the week. In consequence, flour quotations have again been advanced 4@6c. Pure white rye flour $4.02@4.17, in cottons, f.o.b. Minneapolis, pure medium $3.92@4.07, pure dark $3.42@3.57.

With corn denied to distillers, it is felt the latter will want more rye, and with more grain and flour business in sight for export, the undertone of the market is very firm. The army bought a little over 42,000 bags of rye flour the week before last, all of it to go to prisoner of war camps in this country.

Philadelphia: While there is no particular activity in the rye flour market, the undertone continues firm, with offerings light. Prices continue to show an upward trend. White patent $4@4.10.

Cleveland: Rye flour business was very brisk last week, with both jobbers and bakers forced to buy at prevailing prices to take care of their immediate needs. Quotations: rye flour, white $3.90@4.10, dark $2.90@3.10.

New York: Moderate sales of rye flour are reported. Quotations: pure white patents $4.10@4.22.

Chicago: Only a moderate amount of business is reported and this chiefly in smaller lots. Directions are fair. White patent rye $3.70@3.86, medium $3.60@3.76, dark $2.79@3.52.

St. Louis: Prices up 6c. Sales and shipping instructions are fair. Pure white flour $4.42, medium $4.32, dark $3.92, rye meal $4.17.

Buffalo: Demand is excellent. Supplies are fair. Trend is firm. Quotations, cottons: white $4.18, medium $4.08, dark $3.68.

Pittsburgh: Rye flour prices are higher. Light, scattered sales continue. The trade, having bought at lower levels, shies at rye flour at advanced prices. Fancy white $3.95@4.05, medium $3.85@3.95.

OATMEAL MARKETS

Toronto-Montreal: Domestic demand slowing up but mills are busy filling export orders booked some time ago. No new business has come in. Ceiling prices prevail. Quotations June 9: rolled oats $3.15 bag of 80 lbs, cotton, in mixed cars; oatmeal, in 98-lb jutes, $3.85 bag, f.o.b. Toronto or Montreal.

Winnipeg: Rolled oats and oatmeal in poor demand and the moderate supplies on hand are sufficient to meet requirements. Quotations: rolled oats, in 80-lb sacks, $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Rolled oats were quoted on June 11 at $5.71 per 100 lbs, bulk; 20-oz packages $2.65 case, 48-oz packages $2.89.

United States Visible Grain Supply

Visible supply of grain in the United States as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted), of date June 2:

	Wheat	Corn	Oats	Rye	B'ley
Baltimore..	1,520	1,302	15	..	2
Boston ...	141	..	..	250	..
Buffalo ..	2,991	702	3,509	1,043	549
Afloat ..	953	..	..	..	..
Chicago ..	1,535	1,970	3,243	4,505	1,382
Duluth ...	12,195	535	1,120	241	4,424
Ft. Worth.	3,795	185	147	31	47
Galveston..	1,750	254	..	..	..
Hutchinson	6,075	..	..	..	..
Ind'apolis..	479	1,663	100	71	..
Kan. City.	10,023	2,156	65	267	518
Milwaukee.	159	105	6	..	3,207
Mpls.	4,550	833	737	1,010	3,839
New Orl...	734	405	42	9	..
New York.	235	3	30	271	..
Omaha ...	2,255	2,050	179	22	131
Peoria ...	..	392	..	..	51
Philadel. .	739	89	49	99	..
Sioux City.	108	85	50	8	5
St. Joseph.	1,349	920	366	3	29
St. Louis .	474	1,234	411	19	115
Wichita ..	2,587	2	6	..	152
On Lakes..	653	..	..	..	..
Total June 2, 1945..	55,300	14,885	10,075	7,849	14,452
Total June 2, 1944..	84,822	7,174	7,000	21,194	7,487

Bonded Grain in the United States

Bonded grain in the United States June 2, 1945, in bushels (000's omitted):

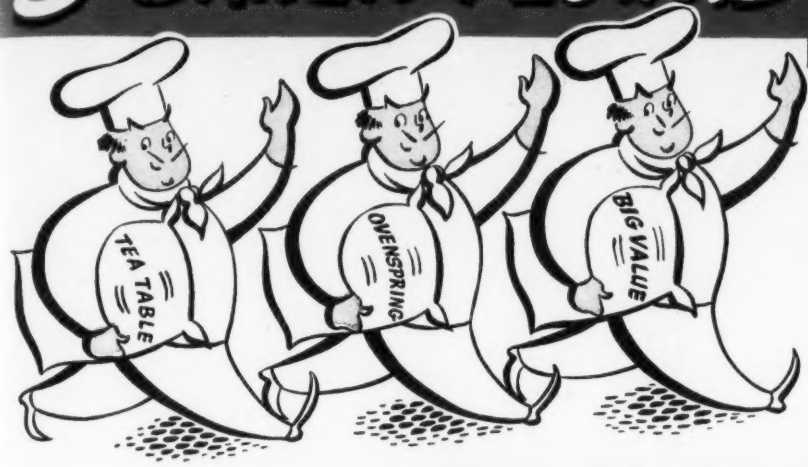
	Wheat	Oats	Rye	Barly
Baltimore	1,368	..	..	..
Boston	10	..	..	..
Buffalo	9,267	1,950	46	43
Afloat	637	127	..	107
Chicago	39	78	239	..
Duluth	..	..	..	619
Lakes	631	..	..	..
Milwaukee	..	..	..	333
New York	836	..	..	..
Afloat	572	..	..	..
Philadelphia	1,032	..	..	..
Totals	14,392	2,155	285	1,102
June 2, 1945....	13,572	2,644	286	1,032
June 3, 1944....	6,498	1,746	555	558

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ended June 9, in thousand bushels, with comparisons:

	Receipts		Shipments		Stocks	
	1945	1944	1945	1944	1945	1944
Minneapolis..	87	167	59	45	192	724
Duluth	21	36	35	84	160	1,232

3 BAKER FLOURS



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Member Millers' National Federation
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STOCK FEED 250 TONS
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SAPPHIRE FLOUR
is milled entirely from
MONTANA HARD WHEAT

As the quality of Montana Hard Wheat gained recognition among flour users in this country, it was but natural that milling companies to whom this wheat was available began incorporating it in their milling mix and using such incorporation as a sales argument.

We appreciate this recognition and the soundness of the sales argument, adding to our own sales argument for the flours we mill the reasonable statement that if a little is good, more is better.

SAPPHIRE FLOUR is milled entirely from Montana Hard Wheat. No foreign wheats are available for our use; thus, a necessity becomes a virtue.

Our mills are supported by a substantial number of country elevators located in what we have proven to be the best milling wheat territories within the state. Thus, we select the best at the source.

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General Offices
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"Gt the Wheat"
MONTANA SAPPHIRE FLOUR

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IN CANADIAN
FLOUR & CEREAL
MILLING —

OGILVIE

Makers of
CANADA'S BEST FLOUR from the WORLD'S FINEST WHEAT
WHEAT THAT IS *Carefully* SELECTED, *Correctly* BLENDED
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ALL CODES
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MONTREAL CANADA

Mills at
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MEDICINE HAT

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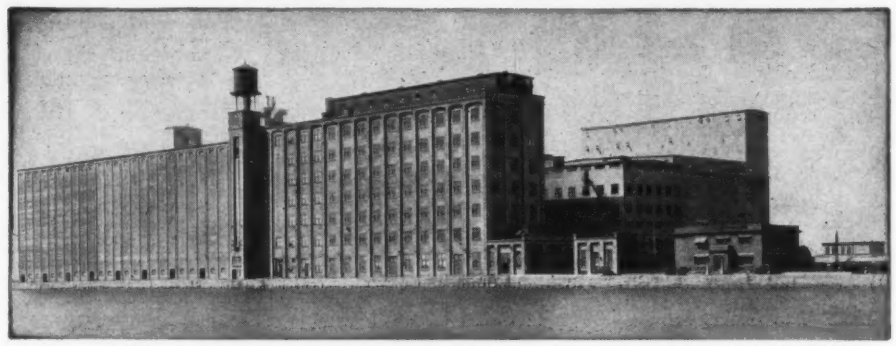

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CABLE: LAKURON TORONTO, CANADA

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BATTLE
MAITLAND
HURON

UNIFORM QUALITY GUARANTEED

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British Columbia, strategically located, will play an ever more prominent part in Canada's future.

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Head Office: MONTREAL, QUEBEC

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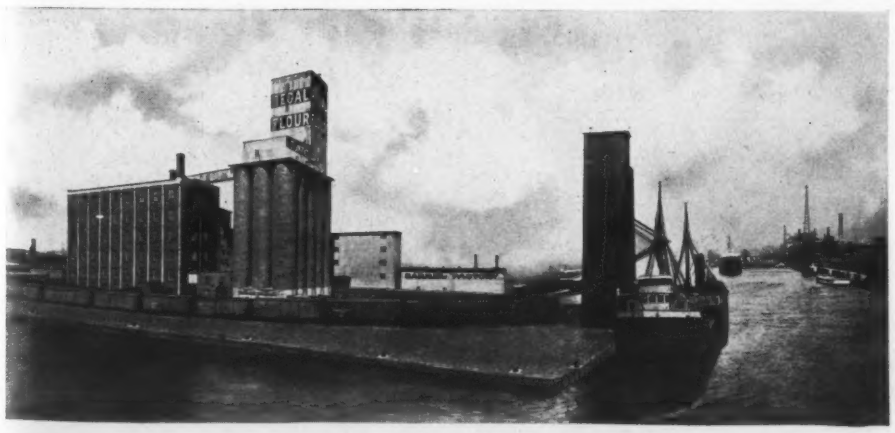
The St. Lawrence Flour Mills Co., Ltd.

MONTREAL • CANADA



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Hard Wheat Flours

"Regal"
"Fleur de Lis"
"National"
"Daily Bread"
"Citadel"

Quality uniformly maintained for over 25 years

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BAG
COMPANY LIMITED
Manufacturers and Importers
CB
COTTON JUTE
AND
PAPER BAGS
BURLAPS & TWINES
WINNIPEG — VANCOUVER

English Flour Milling

(Continued from page 4.)

were found to retain a considerable quantity of meal, which became the perquisite of the miller. But the real genius was the man who was discovered to have two spouts to his stone—one that discharged the meal to his customer, and the other to the miller's private bin.

About the end of the seventeenth century the miller began to trade in grain, meal and flour, until one writer in the Gentleman's Magazine in 1758 complained that "every flour merchant is now the ruler and the lord within his district." The miller was now no longer an artisan but a merchant, and this change, together with the invention of regrinding meal so as to get a larger yield and a finer flour, raised him to a person of importance in the community.

The honor of building the first complete roller mill in Britain fell to John Pattinson, of Penrith, in 1879, the machinery being imported from Hamburg. This mill was later removed to Whitehaven, where this famous old mill still flourishes. This was a period of inventions—and great secrecy was observed in regard to the various processes employed, some using porcelain rollers, others metal. The methods used at any mill were carefully guarded and even recognized high technical experts were not permitted to go through the roller mills. There is really very little reason for this attitude nowadays, and my own firm is notable for its policy of not only permitting visits to its mill at Silloth, but of encouraging such visits.

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"All Risks"
Special Service to Flour Mills on Export and Domestic Ocean and Lake Insurance and Transportation
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Flour Millers
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Cables: "GLUTEN," Melbourne

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COTTON AND JUTE
BAGS
CABLE ADDRESS "WOODSBAG"
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and perfect milling facilities have placed our products in the van.

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Successors to Wolverton Flour Mills Co., Ltd.
Canadian Spring and Winter Wheat Flour
"SILVERKING" "GREAT STAR" "WOLF" "KEYSTONE"
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Summer Hill, Sydney, N.S.W., Australia

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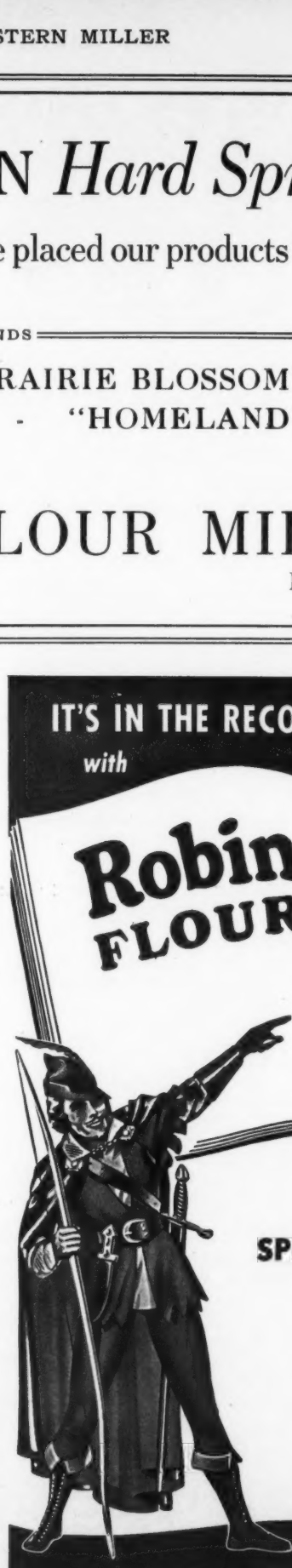
Laboratory Control
Uniformity
Performance



CANADIAN SPRING WHEAT FLOUR

ROLLED OATS

OATMEAL

Robin Hood Flour Mills Limited

Mills and Sales Offices: VANCOUVER · CALGARY · MOOSE JAW · SASKATOON
WINNIPEG · TORONTO · HUMBERSTONE · MONTREAL · MONCTON
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Since 1882

FLOUR

BIG TO

GRIST OF GRINS

Three times he made his way to the ticket window to bet on Bluebells in the fourth race. On the fourth trip an observer tapped the bettor on the shoulder.

"Brother," he said, "I wouldn't bet all that money on Bluebells. He won't win."

"Yeah?" said the other. "How'd you figure that?"

"Well, if you must know, I own Bluebells and I just know he won't win."

"Um—n," was the thoughtful response. "Well all I can say is that it's going to be a mighty slow race; I own the other four horses."

◆ ◆ ◆

"About this girl you want to marry; has she good connections?" asked a proud mother.

"Well, she never came apart when I was with her," replied the sailor.

◆ ◆ ◆

A clergyman was being shaved by a barber who had evidently become unnerved by a previous night's dissipation. Finally he cut the clergyman's chin. The latter looked up at the barber reproachfully, and said:

"You see, my good man, what comes of hard drinking."

"Yes, sir," the barber replied consolingly, "it sure makes the skin tender, don't it?"

◆ ◆ ◆

For centuries it has been the custom in Arabia for the man to ride the family donkey while the woman, carrying the household goods, walked behind. Now the woman is emancipated. She walks in front. There may be land mines.

◆ ◆ ◆

If you tell the average man there are 270,678,934 stars in the universe, he will believe you, but if a sign says "Fresh Paint" he has to make a personal investigation.

◆ ◆ ◆

A mule and a jeep are said to have met on the highway.

"And what might you be?" asked the mule.

"An automobile," answered the jeep. "And you?"

"I'm a horse," replied the mule.

And they both laughed.

◆ ◆ ◆

She was a good looking blonde, and when her tire went flat she hailed a passing motorist. He stopped:

"Wonder if you'd help a girl in trouble?" she inquired.

He said: "Sure, sister; what kind of trouble do you want to get into?"

◆ ◆ ◆

Important Notice.—My wife found a lady's purse on the floor of my car, left there while the car was parked. If the owner can describe the purse and contents, the property will be returned, upon payment of this ad. If the owner can explain satisfactorily to my wife how the purse got in the car, I will pay for the ad myself, including a $10 reward.—Leverton (N. M.) Free Press.

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KANSAS STAR
GOLDEN CREST

☆

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For more than 32 years exclusively

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"Check" ENRICHMENT TROUBLES with N-A's 3 Way SERVICE

Correct flour enrichment depends on the concentrate itself, proper methods of application and dependable equipment; N-A's 3-Way Service meets these requirements with:

1. N-RICHMENT-A*, with its 10% safety factor
2. N-A Technical Field Service
3. N-A Enrichment Feeders

Just call your local W&T Representative to "check your enrichment troubles" with N-A's 3-Way Service.

*Registered Trade Mark

TYPE 4 N-RICHMENT-A

This type has ferrum reductum as its source of iron, and when fed at the rate of ¼ oz. of N-RICHMENT-A to 100 lbs. of flour, there is practically no ash addition from the concentrate.

TYPE 4-A N-RICHMENT-A

This type is the same as Type 4 except that it is compounded to be fed at the rate of ½ oz. of N-RICHMENT-A to 100 lbs. of flour.

TYPE 5 N-RICHMENT-A

This type has sodium iron pyrophosphate as its source of iron and is compounded to be fed at the rate of ½ oz. of N-RICHMENT-A to 100 lbs. of flour.

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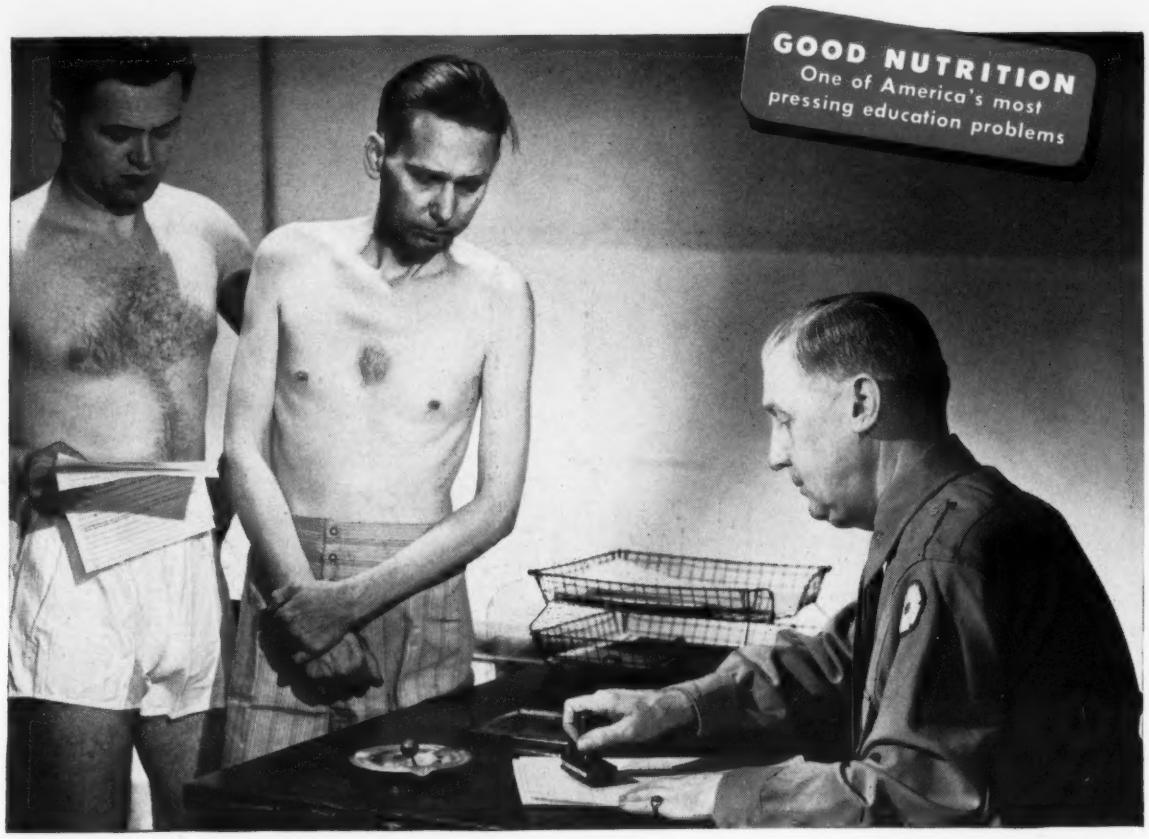
WALLACE & TIERNAN CO. INC., AGENTS FOR

NOVADEL-AGENE

BELLEVILLE 9 • NEW JERSEY

Represented in Principal Cities



4,588,000 REJECTIONS

One man has been rejected for every 2.35 accepted under Selective Service as of January 1, 1945

It's a tragic commentary on the state of the nation's health and fitness that while 10,753,000 men were being inducted into the armed forces an army almost half as large was placed on the sidelines . . . unfit.

What's even more tragic is the fact that many of the defects which caused these turndowns, authorities agree, could have been prevented.

For example, there is agreement that the percentage of physical rejections caused directly or indirectly by improper diets is high enough to make the need for better nutrition in America clearly evident.

Here at General Mills we have begun working (with the advice of a committee of educators) to develop materials which we hope will be helpful in teaching good nutrition to school children.

These materials will be based on the latest authoritative information, and will be thoroughly tested in the months to come with the cooperation of a number of rural, suburban and city schools.

Progress of this work will be reported to you on these pages. We invite your comments and suggestions.

General Mills, Inc.

Minneapolis, Minnesota

Enriched Flours • Restored Cereals • Vitamin Products

EVERY DAY'S DIET SHOULD INCLUDE THESE FOODS

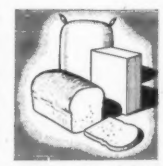
GREEN AND YELLOW VEGETABLES . . . some raw, some cooked, frozen or canned. At least one serving a day.

ORANGES, TOMATOES, GRAPEFRUIT . . . or raw cabbage or salad greens. At least one serving a day.

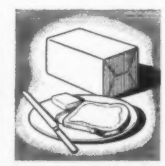
POTATOES AND OTHER VEGETABLE AND FRUITS . . . raw, dried, cooked, frozen or canned. Two or more servings a day.

MILK AND MILK PRODUCTS... fluid, evaporated or dried milk. One quart (or its equivalent) a day for children and expectant or nursing mothers; one pint a day for all others.

MEAT, POULTRY, FISH OR EGGS...or dried beans, peas, nuts or peanut butter. One serving of meat, poultry or fish a day, occasionally peas or beans instead. Three or four eggs each week.



BREAD, FLOUR, CEREALS . . . natural whole-grain or enriched or restored. Three or more servings a day.



BUTTER AND FORTIFIED MARGARINE . . . use for spreads and for seasoning as you like and as supplies permit.

In addition, all growing children and all expectant or nursing mothers should be provided with 400 units a day of Vitamin D in the form of Vitamin D milk (fresh or evaporated), fish liver oil or Vitamin D concentrate

One of a series of ads appearing in educational, medical and health magazines which reports on the General Mills nutrition program and helps to establish grain product foods in their proper place in the diet.